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National Defense Authorization Act...

[H.N.S.C. No. 104-24]

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 1997—H.R. 3230

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON NATIONAL SECURITY HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

MILITARY PROCUREMENT SUBCOMMITTEE HEARINGS

ON

TITLE I—PROCUREMENT

HEARINGS HELD
MARCH 19, 21, 22, 29, 1996

DEPOSITORY
OCT 25 1997

[H.N.S.C. No. 104–24]

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104TH CONGRESS
2D SESSION

H. R. 3230

To authorize appropriations for fiscal year 1997 for military activities of the Department of Defense, to prescribe military personnel strengths for fiscal year 1997, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 15, 1996

MR. SPENCE (for himself and Mr. DELLUMS) (both by request) introduced the following bill; which was referred to the Committee on National Security

A BILL

To authorize appropriations for fiscal year 1997 for military activities of the Department of Defense, to prescribe military personnel strengths for fiscal year 1997, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Defense Authorization Act for Fiscal Year 1997".

* * * * * * *

TITLE I—PROCUREMENT

Subtitle A—Authorization of Appropriations

SEC. 101. ARMY.

Funds are hereby authorized to be appropriated for fiscal year 1997 for procurement for the Army as follows:

(1) For aircraft, $970,815,000.
(2) For missiles, $766,329,000.
(3) For weapons and tracked combat vehicles, $1,102,014,000.
(4) For ammunition, $853,428,000.
(5) For other procurement, $2,627,440,000.

SEC. 102. NAVY AND MARINE CORPS.

Funds are hereby authorized to be appropriated for fiscal year 1997 for procurement for the Navy as follows:

(1) For aircraft, $5,881,952,000.
(2) For weapons, including missiles and torpedoes, $1,400,363,000.
(3) For shipbuilding and conversion, $4,911,930,000.
(4) For other procurement, $2,714,195,000.

Funds are hereby authorized to be appropriated for fiscal year 1997 for procurement for the Marine Corps in the amount of $555,507,000.

SEC. 103. AIR FORCE.

Funds are hereby authorized to be appropriated for fiscal year 1997 for procurement for the Air Force as follows:

(1) For aircraft, $5,779,228,000.

(2) For missiles, $2,733,877,000.

(3) For other procurement, $5,998,819,000.

SEC. 104. DEFENSE-WIDE ACTIVITIES.

Funds are hereby authorized to be appropriated for fiscal year 1997 for defense-wide procurement in the amount of $1,814,212,000.

SEC. 105. DEFENSE INSPECTOR GENERAL.

Funds are hereby authorized to be appropriated for fiscal year 1997 for the procurement for the Defense Inspector General in the amount of $2,000,000.

SEC. 106. DEFENSE HEALTH PROGRAM.

Funds are hereby authorized to be appropriated for fiscal year 1997 for the Department of Defense for procurement for carrying out health care programs, projects, and activities of the Department of Defense in the total amount of $269,470,000.

SEC. 107. CHEMICAL DEMILITARIZATION PROGRAM.

There is hereby authorized to be appropriated for fiscal year 1997 in the amount of $799,847,000 for—

(1) the destruction of lethal chemical weapons in accordance with section 1412 of the Department of Defense Authorization Act, 1986 (50 U.S.C. 1521), and

(2) the destruction of chemical warfare material of the United States that is not covered by section 1412 of such Act.

Subtitle B—Other Matters

SEC. 110. CLARIFICATION OF WAIVER PROVISION FOR F–15 AIRCRAFT PROGRAM.

The prohibition in section 134(a)(2) of the National Defense Authorization Act for Fiscal Years 1990 and 1991 (Public Law 101–189; 103 Stat. 1383) does not apply to the obligation of funds appropriated by the Department of Defense Appropriations Act, 1996 (Public Law 104–61; 109 Stat. 636) under the heading "Aircraft Procurement, Air Force" and authorized by the National Defense Authorization Act for Fiscal Year 1996 (Public Law 104–106; 110 Stat. 186) for F–15E aircraft or to any appropriation or authorization for the Department of Defense for fiscal year 1997.

SEC. 111. INCREASE IN THE DEFINITIONAL AMOUNTS FOR MAJOR SYSTEMS FOR DEPARTMENT OF DEFENSE PROCUREMENT.

Section 2302(5)(A) of title 10, United States Code, is amended—

(1) by striking out "$75,000,000 (based on fiscal year 1980 constant dollars)" and inserting in lieu thereof "$115,000,000 (based on fiscal year 1990 dollars)";

(2) by striking out "$300,000,000 (based on fiscal year 1980 constant dollars)" and inserting in lieu thereof "$540,000,000 (based on fiscal year 1990 constant dollars)"; and

(3) by adding to the end of section (5)(A), "The Secretary of Defense may adjust the amounts (and the base fiscal year) on the basis of Department of Defense escalation rates; however, that adjustment shall not be effective until after the Secretary transmits a written notification of the adjustment to the Committee on Armed Services of the Senate and Committee on National Security of the House of Representatives.".

SEC. 112. AUTHORIZES REVISIONS TO IMPROVE THE ACQUISITION REPORTING PROCESS FOR MAJOR DEFENSE ACQUISITION PROGRAMS.

Section 2432 of title 10, United States Code, is amended—

(1) in subsection (c)(1)(B) by striking "program acquisition unit cost" and inserting in lieu thereof "procurement unit cost";

(2) in subsection (e) by striking subparagraph (8) and redesignating subparagraph (9) as subparagraph (8), accordingly; and

(3) in subsection (h) by striking subparagraph (2)(D) and by redesignating subparagraphs (E) and (F) as subparagraphs (D) and (E), respectively.

* * * * * * *

ARMY MODERNIZATION AUTHORIZATION

HOUSE OF REPRESENTATIVES, COMMITTEE ON NATIONAL SECURITY, MILITARY PROCUREMENT SUBCOMMITTEE, JOINT WITH MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE, *Washington, DC, Tuesday, March 19, 1996.*

The subcommittees met, in joint session, pursuant to notice, at 10:03 a.m., in room 2118, Rayburn House Office Building, Hon. Duncan Hunter (chairman of the Subcommittee on Military Procurement) presiding.

OPENING STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. The subcommittee will come to order.

Today's hearing is the first in a series of three we will have on the services' modernization budget requests. The Air Force hearing will follow on March 22, and the Navy/Marine Corps on March 29.

There has been no shortage of information surrounding the problems faced by the services as their modernization budgets have continued to be the near-term billpayer for shortfalls to their personnel and readiness accounts. I think Adm. Bill Owens, who just retired as Vice Chairman of the Joint Chiefs of Staff, hit the nail on the head when he testified before the Senate Armed Services Committee. I want to quote to our witnesses this morning the statement that he made. This is the same quote we gave to the Secretary of Defense a few days ago.

Adm. Bill Owens said,

> In 1993, the President's budget had for procurement $62 billion. It also prophesied that in 1994—procurement would be—at $63 billion. Of course, what really happened was it went to $48 billion, but we all thought it was going up. And in 1995—it was going up to $55 billion. But, in fact, what really happened was $46 billion. But it promised it would go up.

Actually, I think what he should have said was the leadership in the Pentagon promised it would go up. "And in 1996, we're now down to $39 billion and we're promising that it will go up. We've got to stop promising ourselves and start doing something."

Apparently, Admiral Owens' advice went unheeded, as did that of his former boss and the current Chairman of the Joint Chiefs, General Shalikashvili. The fiscal year 1997 procurement request for the Department is $38.9 billion, a figure which is itself $4.6 billion less than was projected last year. The procurement accounts are reduced by $26 billion over the fiscal year 1997 to fiscal year 2002 timeframe from the amounts forecasted in the fiscal year 96 budget request. So we're doing exactly the same thing. This admin-

istration continues to put this target on the wall and then proceed next year to undershoot that target.

Moreover, instead of addressing the Joint Chiefs of Staff [JCS] Chairman's recommendation that annual procurement funding should reach $60 billion by fiscal year 1998—2 years earlier than the Department planned to do in its fiscal year Future Years Defense Program—the fiscal year 1997 budget further delays achievement of this objective until 2001. So, instead of putting that nail on the wall, as General Shalikashvili said, and bringing the $60 billion procurement year into fiscal year 1998, instead we moved it further away into some future President's budget after the turn of the century, hardly a responsible thing to do by this administration.

Not surprisingly, we heard from the individual Chiefs last week that unfunded modernization needs are their most pressing problem. Today we will hear from the Army concerning those needs. Even though details of the Army's budget have not been delivered to the committee as of today, our senior witness, Mr. Decker, the Assistant Secretary for Research, Development, and Acquisition has been quoted as saying "the biggest hits have come in the procurement accounts."

To put things in perspective, the fiscal year 1996 Army procurement request was $6.3 billion. Congress provided an additional $1.6 billion, a 25-percent increase, with special attention on ammunition, helicopters, tactical wheeled vehicles, and small arms. The fiscal year 1997 procurement request is again $6.3 billion, level with the fiscal year 1996 request, but $1.6 billion below the fiscal year 1996 authorization.

The Army's fiscal year 1997 modernization request—Research and Development [R&D] and procurement—represents but 14 percent of the total modernization budget for the Department, an amount well below the level many defense analysts think is sufficient. Admiral Owens has publicly stated that "we are not doing well" when it comes to recapitalizing the Army. General Reimer, the Army Chief, declared in his posture statement that the fiscal year 1997 budget request reflects the Army's minimum requirement for modernization. And Maj. Gen. Howard, the Army Budget Director, in his briefing to the committee staff last week, noted that "constrained investment limits our ability to provide our 21st century soldier with the world's best equipment."

Joining us this morning to provide more details on what little data the Department has provided to date are the Hon. Gil F. Decker, Assistant Secretary of the Army for Research, Development, and Acquisition—and it's nice to have you with us again, Mr. Decker——

Mr. DECKER. Thank you, sir.

Mr. HUNTER [continuing]. And his Military Deputy, Lt. Gen. Ronald V. Hite. General Hite, thank you for being with us.

General HITE. Thank you, Mr. Chairman.

Mr. HUNTER. Mr. Secretary, I know you have brought along some other folks, and I will allow you to introduce them later in the hearing. We welcome you all and thank you for being here.

Before I turn the floor over to you, I would first like to call, since Curt Weldon, who is our chairman of the Research and Develop-

ment Subcommittee, is not here—and apparently Mr. Spratt is here—I will turn to Mr. Spratt.

Mr. SPRATT. Thank you, Mr. Chairman. I have no opening statement, except to welcome our witnesses and say that I look forward to their testimony.

Mr. HUNTER. I thank the gentleman.

[The prepared statements of Mr. Hunter and Mr. Weldon follow:]

STATEMENT OF HONORABLE DUNCAN HUNTER
CHAIRMAN, SUBCOMMITTEE ON MILITARY PROCUREMENT
ARMY MODERNIZATION HEARING
MARCH 19, 1996

The Subcommittees will come to order.

Today 's hearing is the first in a series of three we will have on the services' modernization budget requests. The Air Force hearing will follow on March 22nd and the Navy/Marine Corps on March 29th.

There has been no shortage of information surrounding the problems faced by the services as their modernization budgets have continued to be the near-term billpayer for shortfalls to their personnel and readiness accounts. Admiral Bill Owens, the just-retired Vice Chairman of the Joint Chiefs of Staff, hit the nail square-on-the-head in his final appearance on the Hill last month before the Senate Armed Services Committee:

"In 1993 the President's Budget had for procurement $62 billion. It also prophesied that in 1994...procurement would be...at $63 billion. Of course what really happened was it went to $48 billion, but we all thought it was going up. And in 1995...it was going up to $55 billion. But, in fact, what really happened was $46 billion. But it promised it would go up. And in 1996 we're now down to $39 billion and we're promising that it will go up. We've got to stop promising ourselves and start doing something."

Apparently, Admiral Owens' voice went unheeded, as did that of his former boss and current JCS Chairman, General Shalikashivili. The FY 97 procurement request for the Department is $38.9 billion, a figure which is itself $4.6 billion less than was projected last year. The procurement accounts are reduced by $26 billion over the FY 97 to FY 02 timeframe from the amounts forecasted in the FY 96 budget request. Moreover, instead of addressing the JCS Chairman's recommendation that annual procurement funding should reach $60 billion by FY 98 (two years earlier than the Department planned to do in its FY 96 Future Years Defense Program), the FY 97 budget further delays achievement of this objective until 2001.

Not surprisingly, we heard from the individual Chiefs last week that unfunded modernization needs are their most pressing problem. Today, we will hear from the Army concerning those needs. Even though details of the Army's budget have not been delivered to committee as of today, our senior witness, Mr. Decker, the Assistant Secretary for Research, Development, and Acquisition has been quoted as saying "the biggest hits have come in the procurement accounts."

To put things in perspective--the FY 96 Army procurement request was $6.3 billion. Congress provided an additional $1.6 billion--a 25% increase--with special attention on ammunition, helicopters, tactical wheeled vehicles, and small arms. The FY 97 procurement request is again $6.3 billion, level with the FY 96 request, but $1.6 billion below the FY 96 authorization.

The Army's FY 97 modernization request--R&D and procurement--represents but 14% of the total modernization budget for the Department, an amount well below the level many defense analysts think is suficient. Admiral Owens has publicly stated that "we are not doing well" when it comes to "recapitalizing the Army." General Reimer, the Army Chief, declared in his posture statement that the FY 97 budget request reflects "The Army's minimum requirement for modernization." And Major General Howard, the Army Budget Director, in his briefing to the committee staff last week, noted that "constrained investment limits our ability to provide our 21st century soldier with the world's best equipment."

Joining us this morning to provide more details on what little data the Department has provided to date are:

The Honorable Gilbert F. Decker
Assistant Secretary of the Army for
Research, Development, and Acquisition

and his Military Deputy

Lieutenant General Ronald V. Hite

Mr. Secretary, I know you have brought along some other folks, and I will allow you to introduce them later in the hearing. We welcome you all and thank you for being here. However, before I turn the floor over to you, I first want to call upon Curt Weldon, the Chairman of our Research and Development Subcommittee for any remarks he may have--followed by Mr. Skelton and Mr. Spratt, the ranking

Democrats on the Procurement and R&D Subcommittees respectively. Mr. Weldon.....

STATEMENT OF CHAIRMAN CURT WELDON
ARMY MODERNIZATION HEARING
MARCH 19, 1996

Thank you Mr. Chairman.

It is a pleasure for me to co-chair this Army modernization hearing with my friend and colleague, Duncan Hunter, who is a champion here on the committee in support of a strong military.

I share his concern for the continued decline of the procurement budget. What I am seeing in R&D with the limited information that has been provided, the Army has dropped about 40% in constant dollars from where we were just four years ago. What makes matters worse, the Army will be 50% below its 1992 appropriation at the end of this century! That's real downsizing folks! But at what cost? If we are not careful, our Army may not be prepared to meet tomorrow's challenges to national security.

It is no secret that the Army has very limited modernization programs in development, and two of its most important ones are either in trouble technically or are inappropriately funded because of the many financial shortfalls that exist in the overall Army's modernization account.

What amazes me is that the Army's modernization budget is only 14% of the entire DoD modernization budget, but for some reason, the Department leadership has gives lower priority to the Army troops that were on the ground in Haiti and Somalia on those that are on the ground now in Bosnia. In the future, we can be sure that were will be more Army troops engaged in regional conflicts and peace keeping operations that are representative our military operations in the post Cold War era.

It seems to me that this committee has a responsibility to ensure that our soldiers are equipped with the best systems we can provide, and provide it to them quickly and in adequate numbers to ensure technological superiority and protection of the forces we send to do their jobs.

I believe now is the time for these subcommittees to reaffirm our commitment and attention to priorities within the Army. My subcommittee must ensure we have a sound program in R&D today to support the procurements of the future with an enabling acquisition process and stable technology base that supports meeting the requirements of our Army.

I know that even with its diminished R&D funds, the Army is still out in front in a number of areas that is moving new technology into the battlefield with the Comanche helicopter and the Force XXI Warfare experiments that include radically new developments for the foot soldier for the 21st century.

Secretary Decker, General Hite, I welcome you here this morning and look forward to your testimony.

I yield back to my co-Chairman Duncan Hunter for further introductions.

Mr. HUNTER. Let me then turn to the gentleman from Missouri, the very distinguished ranking member of the subcommittee, Mr. Skelton.

STATEMENT OF HON. IKE SKELTON, A REPRESENTATIVE FROM MISSOURI, RANKING MINORITY MEMBER, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. SKELTON. Thank you, Mr. Chairman. Let me specifically thank you for holding this hearing. I welcome Mr. Decker and General Hite to our committee room this morning.

I was rather encouraged, Mr. Chairman, when on March 8 the Secretary of the Army stated that people are our most important asset. We, of course, have thousands and thousands of young folks in green uniforms throughout the world.

As you know, last year, realizing the stresses and the strains on the individual soldier, as testified to by the Chief of Personnel, Lt. Gen. Ted Stroup, we put a floor of 495,000 in for the United States Army. Later in the testimony, however, Secretary West advocated a policy to reduce force structure and manpower to pay for Army modernization.

It appears that a policy to reduce manpower levels is consistent with the testimony of the Secretary of Defense. The preliminary budget request presented to this committee would fund Army end strengths at 475,000 in 1998 and 1999, which is counter to the statutory provision and asserted in last year's bill. So it's clear that the Army modernization accounts, as the administration sees it, has the modernization accounts and the personnel accounts competing for money within the Pentagon. It pains me to hear that personnel may be losing because, quite honestly, if you don't have good people—and it takes a long time to grow a sergeant first class, or a lieutenant colonel or a major—if you don't have the good people coming in and staying, they won't be able to use this Force XXI modernization that we also hope to have.

We need a lot of things: countermines, artillery, counterartillery, such as the Fire Finder and Short Stop programs, combat identification, command and control, digitization, logistics, support and supply, not to mention the Army's plan to modernize the helicopter fleet, an estimate of nearly $40 billion over the next 35 years.

In view of all of this, I have to agree with the Chairman, that we're going to have to do a better job, on your side of the river as well as ours. I testified last year, and I intend to testify again this year, before the Budget Committee, urging a substantial increase so that we can keep these things, keep the people, and keep the modernization going for the Army as well as the other services.

I look forward to the testimony from the witnesses today. I will be listening very carefully. We just have to do a better job in obtaining bottom-line figures for what you need. That is budgetary, it's within the Constitution, and it's our responsibility, and it is the Pentagon's responsibility to make recommendations. I hope that we can do better, both for the young men and women in uniform, as well as for the modernization that is so necessary for the U.S. Army.

Welcome, and thank you.

Mr. HUNTER. I thank my friend.

Let me also thank the Chairman of the full committee, Mr. Spence, for attending this very important subcommittee hearing. Thank you, Mr. Chairman.

[The prepared statement of Mr. Skelton follows:]

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CONGRESSMAN IKE SKELTON
OPENING STATEMENT BEFORE THE
MILITARY PROCUREMENT AND RESEARCH AND DEVELOPMENT
JOINT HEARING
March 19, 1996

MR. CHAIRMAN, THANK YOU FOR HOLDING THIS HEARING. LET ME WELCOME THE HONORABLE GIL DECKER AND LT. GENERAL RON HITE.

ON MARCH 8th, I WAS ENCOURAGED WHEN I HEARD THE SECRETARY OF THE ARMY STATE "OUR PEOPLE ARE OUR MOST IMPORTANT ASSET," AS HE NOTED THAT IN ADDITION TO THE THOUSANDS STATIONED OVERSEAS, MORE THAN 41,000 YOUNG SOLDIERS ARE DEPLOYED -- ON NEARLY 1,700 MISSIONS IN 60 COUNTRIES AROUND THE WORLD. THIS RECOGNITION WAS CONSISTENT WITH CONGRESSIONAL ACTION IN THE 1996 DEFENSE AUTHORIZATION BILL:

PUBLIC LAW 104-106, CHAPTER 39 OF TITLE 10, STATES,

> "Permanent end strength levels...are...necessary to enable the armed forces to fulfill a national defense strategy calling for the United States to be able to successfully conduct two nearly simultaneous major regional contingencies.
>
> Unless otherwise provided by law, the number of members of the armed forces on active duty at the end of any fiscal year shall be not less than the following:
> (1) For the Army, 495,000"

YET, LATER IN THE SAME TESTIMONY, SECRETARY WEST ADVOCATED A POLICY TO REDUCE FORCE STRUCTURE, AND MANPOWER IN ORDER TO PAY FOR ARMY MODERNIZATION.

RECOMMENDING A POLICY TO REDUCE MANPOWER LEVELS IS CONSISTENT WITH THE TESTIMONY OF THE SECRETARY OF DEFENSE. THE PRELIMINARY BUDGET REQUEST PRESENTED TO THIS COMMITTEE WOULD FUND ARMY ENDSTRENGTH AT 475,000 IN 1998-99 -- COUNTER TO STATUTORY REQUIREMENTS.

IT IS CLEAR THAT ARMY MODERNIZATION ACCOUNTS AND PERSONNEL ACCOUNTS ARE COMPETING FOR MONEY WITHIN THE PENTAGON. IT PAINS ME TO HEAR THAT PERSONNEL MAY BE LOSING.

AND IT MAY GET WORSE. IN ORDER TO MOVE TO A HIGHLY CAPABLE

PRINTED ON RECYCLED PAPER

FORCE IN THE NEXT CENTURY --- OR "FORCE TWENTY-ONE" --- SEVERAL PROGRAMS MUST BE ADDRESSED IN THE FOLLOWING AREAS:

- COUNTERMINES
- ARTILLERY
- COUNTER ARTILLERY, SUCH AS THE "FIREFINDER" AND "SHORTSTOP" PROGRAMS
- COMBAT IDENTIFICATION
- COMMAND AND CONTROL
- DIGITIZATION
- LOGISTICS, SUPPORT, AND SUPPLY
- NOT TO MENTION THE ARMY'S PLAN TO MODERNIZE THE HELICOPTER FLEET; AN ESTIMATE OF NEARLY $40 BILLION OVER THE NEXT 35 YEARS.

IN VIEW OF THE PROJECTED CUTS IN PERSONNEL LEVELS, IT MAY BE TIME RE-EVALUATE ARMY FUNDING PRIORITIES IN ORDER TO GET "MORE BANG FOR THE BUCK," AND TO ADDRESS SEVERAL SHORTCOMINGS IN THE WAY THE ARMY PLANS TO MEET STRATEGIC REQUIREMENTS.

I LOOK FORWARD TO THE TESTIMONY FROM THE WITNESSES TODAY, AND WILL BE CAREFULLY LISTENING TO THE RATIONAL FOR PARTICULAR PROGRAMS. IT IS IMPERATIVE WE ENSURE THAT SUPERIOR PROGRAMS ARE BOTH DEVELOPED AND FUNDED OVER THE NEXT FEW YEARS. OUR ARMY DESERVES NOTHING LESS THAN THE BEST OUR NATION HAS TO OFFER. I EXPECT IT WILL RECEIVE IT.

THANK YOU.

Mr. HUNTER. Mr. Decker, the floor is yours.

STATEMENT OF GILBERT F. DECKER, ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION, DEPARTMENT OF THE ARMY, AND LT. GEN. RONALD V. HITE, MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION, DEPARTMENT OF THE ARMY, ACCOMPANIED BY LT. GEN. OTTO J. GUENTHER, DIRECTOR OF INFORMATION SYSTEMS FOR COMMAND, CONTROL, COMMUNICATIONS AND COMPUTERS, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION; MAJ. GEN. EDWARD G. ANDERSON III, ASSISTANT DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS FOR FORCE DEVELOPMENTS, DEPARTMENT OF THE ARMY; AND DR. FENNER A. MILTON, DEPUTY ASSISTANT SECRETARY FOR RESEARCH AND TECHNOLOGY, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION, DEPARTMENT OF THE ARMY

Mr. DECKER. Thank you, Mr. Chairman, and members of both subcommittees, for this opportunity to testify on the Army Research, Development, and Acquisition budget for fiscal year 1997 and to touch on the overall Army modernization program long term.

I would like very much to express our sincere appreciation for your help and guidance over the past years, certainly since I've been here, and especially for your support of our Army modernization needs for last year in the fiscal year 1996 budget.

Lieutenant General Hite and I have prepared a joint, detailed, written statement for the record, copies have been provided to you and the committee, and I offer that statement officially for the record at this time.

Sir, before I present the rest of my brief—and I promise you they are brief—oral opening remarks, I would like to present a very short video on today's Army and its modernization program. It shows a glimpse of what we are doing with the authorizations you have provided us.

Mr. HUNTER. Thank you, Mr. Decker.

Before you do that, all statements, without objection, will be accepted into the record.

Mr. DECKER. That's fine.

[Video Presentation.]

Mr. DECKER. Thank you, sir.

As you will see in our testimony, and in answers to questions, I'm sure, and what you saw on the video, the soldier has once again become the basic building block of the Army. I would like for you to see an example of our Land Warrior Program in the flesh, and then I will complete my brief oral remarks.

I will now turn it over to General Hite.

General HITE. Mr. Chairman and members of the committee, I am proud to introduce a great soldier, Sgt. Gary Moubray, of the 29th Infantry Division, Virginia National Guard.

Sergeant Moubray is equipped, outfitted, with the Land Warrior System. It is the Army's first integrated soldier system. This sys-

tem is modular and it's tailorable by the soldier for a specific mission.

This program is currently in advanced development and will go to production in 1999. What it does is it increases the lethality, the survivability, and what is very critical to a foot soldier, the comfort of wearing this type of equipment and carrying these types of loads into combat.

I will briefly describe the system, beginning with the head cover. This helmet, this protective head gear, is 15 percent lighter than the current protective head gear we have, and yet it gives the same protection. It has a heads up display, which can be flipped up and down, which is attached to his individual combat weapon, which has a variety of sensors, also tailorable. It is also attached to a computer system on the back, and a radio system, that allows the individual soldier to see a digitized map, to understand where troops are located, to receive messages through the eyepiece, to see day or night through the sensors that he has on his individual combat weapon.

The individual can also for the first time talk to all the other individuals in his squad through this piece here and with the radio on the back.

Going on down the soldier, we have a protective vest, again with the same level of protection, but utilizing the technology which your committee has authorized us to go out and develop. We have been able to reduce the weight of this vest by 15 percent. And by putting a plate in the front, not only can we give the soldier protection from frags, we can also give the soldier protection from kinetic energy type small arms, 5.5, 6 bullets. The system is designed to be as comfortable as possible, considering the soldier can carry up to 75 pounds. It has pockets that open for air flow. It is flexible.

Sergeant Moubray has been through many obstacle courses with this and I guarantee he is much more comfortable than with the current system we have. The system has a very unique design here, where the antenna for the global positioning system and all the wiring for the system that's on the back of the soldier are included in the side here for protection and ease of maintenance.

We have two radios, with the squad leader's version, and we also have a small computer. The computer and the radios both use commercial electronic components the size of playing cards. It's very easy to maintain and is very reliable. The system operates with two standard Army batteries, with 24 hours of life in these two batteries. It can be adjusted, similar to the lumbar adjustment on your car seat, to make it as comfortable as possible.

Now, the squad leader version enables the sergeant to talk to all the members of the squad. He also has another radio that enables the squad leader version to talk to his platoon leader.

The weapon that the sergeant is carrying has four rails on it. It enables him to tailor this weapon to the mission that the individual is going on that particular event. You can have a night sight, you can have a TV camera for daytime operations, you can have a laser range finder which for the first time enables this individual soldier to become a forward observer and call in fires very accurately. For example, the sergeant was standing here on the Capitol steps with

his laser range finder and he could lase toward the Lincoln Memorial and call in accurate fires to that representative distance.

I told you the system was modular. This is a modular backpack. It snaps in and pulls up. You can also tailor this backpack to two packs on the side. The sustaining pack has sleeping bags, socks, items of a personal nature that the soldier would need for comfort. Then you have the assault pack, which is here. You can carry your MRE's, meals ready to eat. You can carry your ammunition, like claymore mines and other types of ammunition for your weapon system.

The system is very comfortable. It has gone through some extensive testing, and it will go through more extensive testing. As I mentioned earlier, we hope to go into procurement in 1999 with this system. For the first time, we're giving our soldier an integrated system of his own, as Mr. Decker observed.

Thank you very much.

Mr. DECKER. Thank you very much, General Hite.

Congressman Hunter, as you pointed out, there are hard times again this year. The Army was faced with tough budget choices, as we worked hard to balance our readiness needs of current forces and our quality-of-life needs for current forces with our modernization needs both for current and future forces.

I'm sure you realize well—and I know you do from your opening remarks—that severely constrained modernization resources have extended fielding times. They've delayed modernization of the total force, so we're in a constant prioritization drill; they've delayed deploying the next generation of systems; and from a pure business standpoint, we have several executable but inefficient programs.

Given this environment, where are we headed for the future? We have set in motion a series of initiatives to arrive at the 21st century with minimum requisite capabilities, and we call this program Force XXI. This is both a process and a product designed to look at both the operational and institutional Army. Leveraging technologies, information in particular, to enhance the capabilities of the quality force we have today, Force XXI is America's evolving Army of the 21st century, and it's a process of continuous learning, transformation, and modernization.

We have been at this now with a very focused effort over the last 3 or so years, and I believe our Army warfighting experiments are starting to show increased effectiveness of these concepts. We clearly recognize that today's modernization is tomorrow's readiness. To help ourselves, we in the Army, with the leadership of the Secretary of the Army and the Chief of Staff, are studying and beginning to take aggressive actions to reduce our infrastructure and to reengineer certain processes. We are looking for inefficiencies across the Army, in our institutional Army, and for ways to reduce those inefficiencies.

With your help, and Secretary Perry's lead, and the Army leadership's lead, we continue to reform the acquisition process from the program manager in the field all the way up to my office. We believe we will see, and we're beginning to see, evidence of some significant portions of savings from these acquisition reform initiatives, and we're programming them into the modernization accounts.

Our Army today is approximately the 8th largest army in the world. Thank God, it's truly the 1st best, due to quality people, superb training, and the best technology capabilities we have to offer. It must remain that way.

Our soldiers, as we speak, do have the best warfighting equipment in the world, but it's slipping. There is a lot of life left in many of our platforms. These platforms were world class when first fielded, and they still are. So our near term strategy is to leverage these previous investments through technology insertion and modernization upgrades.

There are numerous examples of those, and I'll touch on three or four here, and we will certainly go into whatever detail you would like. We have covered a number of these in our prepared written statements.

We are upgrading the M1 tank to the M1–A2 configuration. We are upgrading the Bradley Fighting Vehicle to the M2–A3. The Apache is being upgraded to the Apache Long Bow configuration. I would like to comment here that in the operational test evaluation of Apache Long Bow last year, where the independent testers put your through your paces, it is the only system I can recall in recent times where the tester said, "We can call off the last two test vignettes. This is an overwhelmingly capable weapon system, so why waste money on additional testing."

There's no doubt that the overwhelming results of the capability of that system, in an objective operational test, was a great contribution to the selection by the Netherlands and by Great Britain as the Apache Long Bow being their attack helicopter of choice.

We do continue in this year's budget request to fund a limited but critical number of new weapon systems that complement our technology upgrade programs. Among them are SADARM, the seek-and-destroy armor system; the Crusader Advanced Field Artillery System; the Javelin Missile System; the dismounted soldier's new antitank weapon; the ATACMS/BAT; appliques for Brigade 21; and Comanche, our No. 1 development program. Sir, we are striving to make the most efficient use of the dollars we're given.

This concludes my opening oral remarks. Before we begin questions and answers, in response to a request from you and the committee, we would like to offer a brief overview of the Comanche Program. After that, I will then introduce the test of the team and we invite your questions.

[The prepared statement of Mr. Decker and General Hite follows:]

RECORD VERSION

STATEMENT BY

THE HONORABLE GILBERT F. DECKER

ASSISTANT SECRETARY OF THE ARMY FOR

RESEARCH, DEVELOPMENT AND ACQUISITION

AND

LIEUTENANT GENERAL RONALD V. HITE

MILITARY DEPUTY TO THE

ASSISTANT SECRETARY OF THE ARMY FOR

RESEARCH, DEVELOPMENT AND ACQUISITION

BEFORE THE

SUBCOMMITTEE ON MILITARY PROCUREMENT

AND THE

SUBCOMMITTEE ON MILITARY RESEARCH AND DEVELOPMENT

COMMITTEE ON NATIONAL SECURITY

UNITED STATES HOUSE OF REPRESENTATIVES

SECOND SESSION, 104TH CONGRESS

ON THE FISCAL YEAR 1997 BUDGET REQUEST
AND
THE UNITED STATES ARMY MODERNIZATION PROGRAM

19 MARCH 1996

NOT FOR PUBLICATION
UNTIL RELEASED
BY THE HOUSE
NATIONAL SECURITY
COMMITTEE

INTRODUCTION

Mr. Chairman and Members of the Committee, thank you for the opportunity to appear before you to discuss the proposed Fiscal Year 1997 (FY97) Research, Development and Acquisition (RDA) budget for the United States Army. It is our privilege to represent the Army leadership, the civilian and military members of the Army acquisition work force, and, most importantly, America's soldiers. Our brave men and women operate with great skill and precision the most technologically advanced weaponry on the face of this earth. Today's soldier is well-equipped. Tomorrow's soldier deserves no less.

America's Army is the premier land force in the world. Our well-trained, well-equipped, and ready force would not have been possible without the help and support from Members of this Committee. As representatives of the American people, you have strongly supported our programs and helped to guide them to fruition. The Army has been a careful steward of the resources provided, but our success would not have been possible without your advice and support.

It is imperative that we maintain the Army's technological advantage on the battlefield. Modernization is essential as we transition today's Army into a 21st century Army -- Force XXI. Continuous modernization is one of the keys to dominance on the future battlefield and the key to readiness for unexpected challenges of the 21st century.

There is concern throughout the Army about the funding for modernization and long-term research and development. In FY97, our RDA budget request totals $10.6 billion. Our procurement request is $6.4 billion, 16.3 percent of the Department of Defense (DoD) procurement budget request of $38.9 billion and 10.6 percent of the Army's total budget request of $60.1 billion. In FY97, our Research, Development, Test and Evaluation (RDT&E) request of $4.3 billion totals 12.4 percent of DoD's RDT&E budget request of $34.7 billion and 7.2 percent of the Army's total budget request.

The FY97 budget request will fund our highest priority programs. Our current strategy is to buy a limited number of new weapons, while extending the lives, improving the performance, and adding new capabilities to our existing

systems. But ultimately, the Army will reach the point where additional technological improvements of today's systems will provide only marginal benefits. We must look now at new types of systems and capabilities for our 21st century force.

It is our belief that a stable investment in modernization will ensure the long-term readiness of the force. *Today's modernization program is tomorrow's readiness.* As we complete downsizing and restructuring the force, a renewed emphasis on the Army modernization account is essential. Our actions through the Future Years Defense Program (FYDP) will influence the readiness of the force for the next decade and beyond.

THE ARMY MODERNIZATION PLAN AND FORCE XXI

Throughout history, America's Army has been the force of choice to fight and win our nation's wars. This fact has not changed in the 1990's, and it will not change in the 21st century. As we approach the 21st century, the Army is transitioning from a "threat-based force" to a "capabilities-based force." Since 1989, the Army has seen a 300 percent increase in operational deployments. Missions other than traditional warfare have taken on new importance and have led to more soldiers being deployed on more varied types of missions than ever before. Whether we are doing disaster relief operations in Florida or Bangladesh, supporting democracy in Haiti, peacekeeping in Bosnia, or fighting drug traffickers in Columbia and Peru, all these missions have one thing in common. They require the presence of well-trained, well-led, and well-equipped soldiers on the ground.

There are numerous danger zones and the Army must provide potential solutions to the problems faced by our ground commanders and their troops. Because of the magnitude and urgency of the mine problem in Bosnia, for example, the Army has established a Countermine Task Force to accelerate the fielding of equipment to improve our capability to detect, avoid, clear, or neutralize landmines. The objectives is to move technologies from the laboratory to the soldier in Bosnia quickly. The Task Force is also establishing the strategy for future countermine technology efforts.

The changed world environment presents us with new and difficult challenges, the largest being the resource constrained environment in which we operate. Nevertheless, we cannot afford to take a time out from progress. The Army is redesigning itself to meet the new world order. With Force XXI, we are changing today's Army into a 21st century Army. Equipping Force XXI will be a tough challenge, but we have a plan. The Army modernization plan is a living,

working document. It focuses our efforts to meet the challenges of the post-Cold War world and to maintain the capabilities necessary to protect our nation's interest and to achieve land force dominance over potential adversaries.

The smaller our Army becomes, the more modern and technologically overmatching it must be. If we do not dominate our enemies in the future as we do now, we may still win -- but at the price of far more American casualties, and with the risk of a far longer campaign that will burden our resources and our citizens. The Army modernization strategy focuses our modernization efforts on five objectives where we must preserve our nation's technological overmatch. These five objectives are: *Project and Sustain the Force; Protect the Force; Win the Information War; Conduct Precision Strike; and Dominate the Maneuver Battle.*

Project and Sustain the Force

Although we have a global mission, the Army is now largely based in the continental United States (CONUS). When called upon, we must project our power into trouble spots where often our forces can expect to be the first troops on the ground. The capability to deploy highly lethal combat forces rapidly and sustain them from bases both here at home and from our remaining bases overseas is fundamental to our success in any mission. The Army's strategic mobility is based on a critical triad of pre-positioned equipment and supplies, strategic sealift, and strategic airlift.

Following are descriptions of systems and systems upgrades in development or in procurement that will help to ensure that we *Project and Sustain the Force.*

Sustaining the power projection Army throughout the length of the mission will be enhanced by initiatives such as the Army's Total Distribution Program, which is designed to track the quantity, location, and condition of assets anywhere at any time and control the distribution of material within a theater of operations. Using primarily off-the-shelf commercial capabilities, this system will give us asset visibility throughout the force and its support system.

Tactical Wheeled Vehicles (TWV) are a critical element of the Army's operational effectiveness and are essential to projecting and sustaining the force. Today's modern, mobile Army doesn't run on its stomach; it runs on its trucks. Among our most important TWV programs is the Family of Medium Tactical Vehicles (FMTV). The Army is currently negotiating a contract modification to extend production under the current contractor. A family of diesel powered

trucks in the 2-1/2-ton and 5-ton payload capacity, built on a common chassis, FMTV will perform line haul, local haul, unit mobility, unit resupply and other missions in combat, combat support, and combat service support units. The Army approved full-rate production in August 1995. What you do not see in the budget submission is our 2-1/2-ton truck Extended Service Program (ESP). We have an ongoing, multi-year contract that funds this program from the National Guard and Reserve equipment account. Through ESP, we take our old 2-1/2-ton trucks, remanufacture them, and add state-of-the-art components. The improved vehicles meet current safety and emission standards and have improved mobility, reliability, and operability. After remanufacture and technology insertion, these vehicles are fielded to the Reserve components. The High Mobility Multipurpose Wheeled Vehicle (HMMWV), a Tri-Service program, is a diesel-powered, four-wheel drive tactical vehicle. In FY97, the Army will purchase a HMMWV up-armored scout variant and a heavy variant. In FY97, we intend to procure 1,126 vehicles.

In previous years, we made very painful decisions regarding our combat service support area. Several programs were decremented to pay higher priority bills, but the Army needs generators, trucks, and similar equipment. Our current fleet of 2 1/2 ton trucks is older than the soldiers who drive them. We have got to fund these programs at a minimally acceptable level, which we have attempted to do in our FY97 budget request.

Procurement of the Black Hawk helicopter will continue in FY97 with a new five year contract for an additional 172 aircraft. These new UH-60Ls will go to "first to fight" units, and the "A" models they replace will be used for other priority needs such as Medical Evacuation (Medevac). Black Hawk procurement through FY01 will bring the fleet to 1,622, almost 80 percent of the Army's requirement for 2,042 aircraft.

Force Provider (FP) is a soldier rest and refit facility for use in operations with limited or no supporting infrastructure such as our current peacekeeping mission in Bosnia. FP is a complete tent city with kitchens, showers, latrines, and laundries that is packaged in containers for ease of deployability. In FY97, the Army will procure two FP modules, each to support 550 soldiers.

Protect the Force

Protecting our soldiers has always been important to us, but the lethality of modern weaponry and the availability of theater ballistic and cruise missiles to even third world nations causes us to reemphasize the protection of our forces. We need air defense, particularly defense against theater ballistic missiles, cruise missiles,

and unmanned aerial vehicles (UAVs), to protect critical bases, ports, maneuver forces, and political targets/population centers. Realizing there is no 100 percent effective defense, we must maintain the capability for our soldiers to operate protected in a nuclear, chemical, or biological warfare environment. Finally, the potential for fratricide exists in any military operation. Accurate situational awareness is essential to reduce fratricide.

Following are descriptions of systems and systems upgrades now in development or in procurement that will help to ensure that we *Protect the Force*.

In the low altitude forward area air defense, the Stinger procurement request for FY97 will provide for continued retrofit of this missile to the Block I configuration. This improvement will extend its life and help overcome some of the inherent deficiencies of the currently fielded Stinger, until the Army can move forward with Stinger Block II. RDT&E funds for Stinger Block I will provide continued, essential phased improvements to the software. The Army has also funded critical RDT&E efforts on the Stinger Block II program to continue developing technology for the 2.75" focal plane array seeker, the smallest seeker in the world.

In FY97, funds will provide for the continued procurement of training devices for the Avenger system, and also for termination costs associated with the last year of its multi-year contract. Avenger is a surface-to-air missile/gun weapon system mounted on the HMMWV to counter hostile cruise missiles, UAVs, and fixed-wing aircraft and helicopters.

The proliferation of short range ballistic missiles in the world today poses a direct, immediate threat to many of our allies and to some U.S. forces deployed abroad in defense of our national interests. Over time, the proliferation of longer range missiles will pose a greater threat to the United States -- both to our forces stationed here and to our civilian population. The Department of Defense (DoD) missile defense strategy first prevents and reduces the threat through nonproliferation and arms control regimes, then deters the threat with counter-proliferation activity and retaliatory forces. Missile defense is the final leg in this strategy. The most current threat analysis indicates that the short, theater range missile threat is here now. This threat analysis predicts that quantities of longer range missiles and third world missiles capable of striking the U.S. only grow or begin to appear over a longer period of time.

This understanding of threat timelines combined with the relatively large amounts of resources being applied to Ballistic Missile Defense (BMD) caused the Joint Requirement Oversight Council (JROC) and the Office of the Secretary Defense (OSD) to examine missile defense programs. BMD review results have not altered priorities. Theater Missile Defense (TMD) is still the highest priority -- first with systems that defend against short-range missiles deployed now. Foremost among these is the Army's Patriot Advanced Capability 3, or PAC-3. Longer range TMD follows, and the risk assumed by delaying the Army's Theater High Altitude Area Defense (THAAD) was determined to be reasonable. The next priority is National Missile Defense (NMD), which would defend the U.S. against Inter-Continental Ballistic Missile (ICBM) attack.

Army efforts are key in all areas. We've already built and deployed more than 100 Patriot Guidance Enhanced Missiles (GEM) to improve PAC-2 performance by a factor of four over our capability in Operation Desert Storm. Three of our Patriot battalions are ready to fight with it now. We're also fielding the Joint Tactical Ground Station (JTAGS) data link that brings space based sensor data directly to our theaters and improves the accuracy of existing defenses.

The PAC-3 program provides even better enhancements with a whole new hit-to-kill lethality and broader area coverage. The BMD review added additional resources to PAC-3 and the comparable Navy system, to compensate for delays they have both suffered and to make sure they could be fielded as soon as possible. Neither system is funding constrained. Patriot is fielded with U.S. forces and deployed in CONUS, Europe, Southwest Asia, and South Korea. There are extensive Patriot foreign sales and current foreign interest in the PAC-3 program, which will be fielded first to U.S. forces in FY99.

The Medium Extended Air Defense System (MEADS, formerly the Corps SAM system) will defend ground maneuver forces against multiple and simultaneous attacks by short-range ballistic missiles, low radar cross-section cruise missiles, and other air-breathing threats. It provides immediate deployment of a minimum battle element for early entry operations with as few as two C-141 sorties; has mobility to move rapidly and protect maneuver forces during offensive and defensive operations conducted across large land masses; and uses distributed architecture and modular components for advanced survivability, employment flexibility, and firepower. It will also significantly reduce manpower and logistics requirements.

Last summer, senior military commanders, including the Chairman of the Joint Chiefs of Staff, the Army Chief of Staff and the Commander-in-Chief (CINC) of the Pacific Command all communicated to Congress their strong support for this program to counter maneuver force vulnerability to a growing missile threat. MEADS fills a critical need in both the Army and the U.S. Marine Corps (USMC).

We are not alone in this effort. We will soon sign a quadrilateral Memorandum of Understanding with our German, French, and Italian allies to cooperatively develop MEADS. The U.S. will provide 50 percent of the funding and receive 50 percent of the work for our industry. In October, the Army selected two U.S. contractors to proceed into the International Teaming and Project Definition and Validation phase of the program during which the concept will be finalized for full development and production. First Unit Equipped (FUE) is projected for FY05.

Aerostats are tethered lighter-than-air platforms that carry sophisticated sensor packages to provide over-the-horizon surveillance and precision tracking for lower tier systems such as Patriot, MEADS, and Navy Standard Missile 2 (SM2). The Army Space and Strategic Defense Command (SSDC) has taken the DoD lead and formed a Joint Aerostat Project Management Office for Cruise Missile Defense in Huntsville, Alabama. Project management is headed by an Army colonel with Air Force and Navy deputies. The effort builds on this year's highly successful Mountain Top Experiment which also involved the Army, Air Force, and Navy.

This effort is similar to another highly successful acquisition the Army undertook in the eighties. Concerned with a growing short-range missile threat, the Army then took the initiative and began to build on the highly capable Patriot Air Defense system for TBM defense. The result was a Patriot PAC-2 system able to fight TBM's in Operation Desert Storm. Without this 1980's effort by the Army, the nation would not have had any TBM defenses in the Gulf War.

Today, there is similar concern over the cruise missile threat. This Aerostat effort parallels the work done in the 1980's to give Patriot a TBM capability, and will yield two Aerostat-based operational sensor units by FY02, along with a residual capability for two Patriot battalions to be deployed with them and defeat over the horizon, low observable threats to our forces.

The BMD review validated THAAD as an essential part of our missile defense plans and determined it to be the most mature of our upper tier systems. Without it, near leak proof defense required to defend critical military assets and civilian populations, especially those inland, cannot be achieved. The program successfully completed a Milestone 1

Defense Acquisition Board (DAB) in 1992, is currently undergoing Demonstration/Validation (DEM/VAL) flight testing, and has JROC validated requirements. THAAD hardware and software was engineered to work together as a system from the very beginning. It has demonstrated overall system performance and maturity during extensive ground testing in hardware-in-the-loop facilities and during system testing at White Sands Missile Range in New Mexico. THAAD is a completely integrated hit-to-kill system including missiles, launchers, radars and battle management systems. The BMD review decided to delay THAAD because threat timelines are not as fast as once believed. It also emphasized keeping the User Operational Evaluation System (UOES) schedule for reacting to national need by 1998 with two radars, four launchers, two battle management systems and, by 1999, 40 UOES missiles. Our analysis currently indicates that THAAD will have an objective warfighting capability by FY06.

The Army has been the nation's NMD technical leader for nearly 40 years. The OSD BMD review decided to shift NMD efforts from a technology readiness program to a deployment readiness program. This program is comprised of a three-year development phase after which acquisition could be accomplished quickly (within three years of a future deployment decision) if a threat warrants. Army efforts interface with existing and planned CINC Battle Management/ Command, Control, and Communications (BMC3) and Integrated Tactical Warning and Attack Assessment (ITW/AA) assets including the Defense Support Program (DSP), Early Warning Radars (EWRs), and the Space-Based Infrared System (SBIRS), when it becomes operational. When deployed, these NMD systems will detect, track, discriminate, and intercept threat targets in their midcourse phase of flight and will provide effective protection of all 50 states against quantitatively-limited threats. The Ground Based Interceptor (GBI) provides non-nuclear, hit-to-kill intercepts of strategic reentry vehicles at very long ranges. Although the detailed configuration is not yet final, the Army's approach consists of the Exoatmospheric Kill Vehicle (EKV) on a dedicated booster for which the Army recommends a very capable, commercial, low-maintenance solid rocket booster that a Ballistic Missile Defense Organization (BMDO) "Tiger Team" determined can be procured with acquisition reform techniques for no more cost than that incurred in retrofitting Minuteman missiles. The NMD Ground Based Radar (GBR) acquires, tracks, and discriminates strategic reentry vehicles in their midcourse phase of flight and performs engagement kill assessment. It leverages the investment in the TMD-GBR for THAAD using the same solid-state radar technology and large portions of common software.

The first EKV sensor flight test is scheduled for late FY96 and intercept testing will begin in FY98. The EKV on a surrogate booster, GBR, and BMC3 elements will be integrated in a systems test at the Kwajalein Missile Test Range in FY99. The Army is an executing agent of the ground-based portions of the NMD program with BMDO funding and guidance.

In other areas of protecting the force, we will continue engineering efforts to lower the production cost of the Army's anti-fratricide system, the Battlefield Combat Identification System (BCIS), in FY97 as well as consider promising alternatives being pursued by different allies. BCIS is a millimeter wave, ground-to-ground, point of engagement system that provides through the sight, day/night, all weather positive identification of BCIS-equipped U.S., allied, and coalition platforms. Shooters query potential targets at ranges that can extend beyond five kilometers. Friendly platforms targeted by friendly shooters generate automatic electronic responses in less than a second. BCIS is resistant to electronic countermeasures, active exploitation, and deception. We are currently building 68 BCIS systems for Brigade Task Force XXI. There, BCIS will be tested as a stand alone system and as an input to the situational awareness of heavy forces to determine its value on the digital battlefield. In addition, BCIS will be evaluated along with four other systems in a four party exercise in 1997 (United States, United Kingdom, France, and Germany).

In FY97, OSD will continue to improve the Joint Chemical Biological Defense Program. The Army, as executive agent of the program, has aggressively developed a management structure that serves to coordinate and integrate Service RDA in this critical area. The Joint management structure is developing a program to eliminate duplication and provide the total force with improved chemical and biological protection in the future. Service participation in this process has been enthusiastic and highly constructive. The FY97 budget request will continue procurement of protective masks; allow initial procurements of the Biological Integrated Detection System (BIDS) and protective shelter systems, a mobile medical treatment facility; and continue upgrades to the Nuclear, Biological, and Chemical (NBC) Reconnaissance System. Because of the continued emphasis on biological defense, the Army's first biological detection company will be activated in September 1996.

The soldier is our most precious asset. We continue to place great importance on enhancing the battlefield capabilities of the individual soldier. Soldier Modernization consists of the Warrior programs--Land Warrior, Crew Warrior, and Air Warrior; other support areas such as rations, organizational clothing, and individual

equipment; and the Soldier Enhancement Program. Land Warrior is the Army's premier program for modernizing the dismounted soldier. It consists of an integrated and modular soldier fighting system that includes the soldier's computer, radios, Global Positioning System (GPS), heads-up display, modular weapon system, thermal weapon sight, video capture, improved ballistic protection, advanced load carrying equipment, laser rangefinder, and combat ID compatibility. Currently in Engineering and Manufacturing Development (EMD), Land Warrior has been combined with the Generation II Soldier Advanced Technology Demonstration at the direction of Congress. A single, consolidated system is scheduled for fielding in FY00 and thereafter components will be upgraded through technology insertion. Other important areas of Soldier Modernization, including rations, organizational clothing, and equipment are in various stages of development or fielding in FY97. The Soldier Enhancement Program fields individual soldier items in less than 36 months. This quick fix program provides the Army the ability to impact our short-term missions.

Win the Information War

Information is power. On the battlefield, information is deadly power. A key factor in modern warfare is the ability to collect, process, disseminate, and use information about the enemy while preventing him from obtaining similar information about our forces. In short, we must destroy, disrupt, and control enemy information sources and distribution while ensuring our commanders get accurate and relevant data in time to use it. The goal is to provide Force XXI the operational advantages of information dominance. Targeting and incapacitating the information systems of adversaries, while protecting our own, will allow deep and simultaneous attacks and lead to overmatching force and decisive victory. Equipping our battlefield systems to transmit, receive, and display digital data, is fundamental to winning the information war.

Following are descriptions of systems and systems upgrades in development or in procurement that will help to ensure that we *Win the Information War*.

The Army's primary development system to ensure that our soldiers have the information advantage in the Information Age is the RAH-66 Comanche armed reconnaissance helicopter, currently in DEM/VAL. Last January, Comanche flew for the first time, a very successful flight. In FY97, we will continue flight test of prototype number 1, complete manufacture of prototype number 2, and continue development of the mission equipment package and the T801 engine. Comanche has the potential to make a major contribution to winning the information war, but it will also make significant contributions to the other four modernization

objectives as well. During Operation Desert Storm, our ground commanders never got the near real-time battlefield information they needed to make the best tactical, timely decisions on the employment of battlefield forces. Comanche, if fielded, along with the Joint Surveillance and Target Radar System (Joint STARS) and UAVs, will help correct this most critical deficiency with greatly improved night/adverse weather reconnaissance and target acquisition, deep reconnaissance without detection, survivability, and deployability.

Let me briefly list the capabilities of this revolutionary helicopter under the remaining modernization objectives. (1) The Comanche's capabilities in extended range operations, low observability, target recognition, digitized communications, and armed reconnaissance as well as its ability to quickly respond to a "mission divert" makes it a superior vehicle for deep "precision strike" missions against time sensitive targets -- especially targets so dangerous they must be confirmed killed or reengaged. (2) Comanche provides strategic agility to "project and sustain" (rapid inter/intra-theater deployability) with technical superiority that gives the maneuver commander a decisive force on the battlefield worldwide. Its self-deployment range of 1,260 nautical miles is sufficient to self-deploy from CONUS to Europe, Africa, and the Middle East, and it will require significantly less maintenance support than today's helicopters. (3) Comanche will "dominate maneuver" in its cavalry role by quality armed reconnaissance, developing the situation, providing security, maneuvering rapidly across the battlefield to the critical places and synchronizing other scout reconnaissance assets and weapon systems on the digitized battlefield. Designed for rapid rearm, refuel, and repair, the Comanche will increase the operational tempo. (4) The Comanche will reduce the potential for fratricide and "protect the force" through its advanced electro-optical sensors, aided target recognition and sensor/weapons integration. Its night/adverse weather air defense capabilities are unmatched as is its capability to conduct armed reconnaissance and provide early warnings in all conditions to include day/night/adverse weather. It is clear that Comanche is tailor-made for the new world order. Early Operational Capability (EOC) unit fielding is scheduled for FY02 with six aircraft.

The Army Battle Command System (ABCS) is essential to realizing the Joint interoperability goal of the Command, Control, Communications, Computers, and Intelligence (C4I) for the Warrior concept. Procurement of common hardware and control nodes for ABCS continues in FY97. Under the ABCS umbrella, research and development (R&D) continues on the evolutionary acquisition of the Army Tactical Command and

Control System (ATCCS) which is key to providing commanders in the Army's corps and divisions data to synchronize and direct their forces more effectively.

The ATCCS consists of interoperable automation systems supporting the five Battlefield Functional Areas (BFAs): Maneuver Control System (MCS) supporting the Maneuver BFA; Advanced Field Artillery Tactical Data System (AFATDS) supporting Fire Support; Forward Area Air Defense Command and Control (FAADC2) supporting Air Defense; All Source Analysis System (ASAS) supporting Intelligence/Electronic Warfare; and Combat Service Support Control System (CSSCS) supporting the Combat Service Support BFA. These systems assist the force commanders in processing information within the BFAs, planning and controlling operations, and exchanging information horizontally across the BFAs and vertically from battalion to Echelons Above Corps (EAC).

ASAS continues to be a good news story. The program is implementing Common Operating Environment (COE), Force XXI, and Modern Integrated Database (MIDB) additional requirements above and beyond the Operational Requirements Document. This has resulted in a restructure of functionality and performance. The program manager for Intelligence Fusion is accomplishing all of this with no additional funding. ASAS is deployed in Bosnia to support the U.S. Army Special Operations Command in Brindisi, Italy, the multinational brigade (Finnish, Russian, and American forces), 1st Armored Division, and V Corps.

AFATDS, the automated fire support command, control, and communications system will be the first totally automated fire support system and is interoperable with existing field artillery systems, the Airborne Target Handover System/Improved Data Module, other ABCS nodes, and selected allied fire support systems. AFATDS has been approved for full-rate production and fielding.

CSSCS is currently in EMD, with Low Rate Initial Production (LRIP) authority granted by the Army Systems Acquisition Review Council (ASARC) in February 1995. CSSCS is an active participant in Brigade Task Force XXI and other ongoing Army Warfighter Experiments (AWE) and is scheduled for an Initial Operational Test and Evaluation (IOT&E), Phase II at Fort Hood, Texas, from September to November 1996. The MCS program will conduct a System Segment Acceptance Test (SSAT)/Customer Test (CT) in FY97 and an IOT&E in FY98.

All ATCCS systems will be provided to the 4th Infantry Division (4ID), designated as the Experimental Force (EXFOR) for Task Force XXI. In support of the lower echelon command and control and digitization of the battlefield, the Force XXI Battle Command Brigade and Below (FBCB2) Appliqué

Program will equip and train a brigade size force during FY97 for the AWE entitled Brigade Task Force XXI. Appliqué sets are being acquired for field exercises to provide command and control capabilities to platforms that either have no embedded command and control capabilities or where existing capabilities are inadequate to meet user needs.

The Army has adopted a technical architecture with open standards that will enable complete interoperability across all platforms on the battlefield. The Army is the first Service to do so. Our technical architecture is based on widely accepted commercial standards and the Defense Information Systems Agency's Technical Architecture for Information Management, and is composed of four elements: information processing, data transport, and information standards, as well as a human-computer interface framework. This architecture is applicable to all strategic, tactical, and sustaining base information, communications, and embedded C4I systems. By implementing these well-defined, widely-known, and consensus-based standards, the Army can leverage marketplace investments and assure a migration path into the future. The Army technical architecture has been selected as the baseline for a Joint technical architecture to be developed by OSD.

The Command and Control Vehicle (C2V) will enter LRIP in FY97. FUE is planned for FY99. The C2V will be a fully tracked, lightly armored vehicle that will ensure a mobile, responsive, and survivable command and control capability for armored forces. It is a battalion-through-corps-level command and control platform which supports operations on the move and integrates the ABCS components.

In support of higher level command and control, the Army Global Command and Control System (AGCCS) will migrate from the current Worldwide Military Command and Control System support infrastructures to the AGCCS single Common Operating Environment (COE). Each of the ATCCS/ABCS tactical command and control systems will continue development and implementation of the COE software into their systems.

The CONUS-based power projection Army is dependent on military satellite communications to ensure the flow of critical command and control information to forces deployed anywhere in the world. To satisfy this critical command and control communications requirement, the Enhanced Manpack UHF Terminal (EMUT) program continues in procurement in FY97. The EMUT provides single channel, Demand Assigned Multiple Access (DAMA), secure tactical UHF satellite communications to corps, divisions, and special operations forces to support command and control during power projection and early entry operations. The need for this capability was shown to be critical during Operation Desert Shield/Desert

Storm. It also satisfies the Joint Chiefs of Staff mandate to be DAMA and Advanced Narrowband Secure Voice capable, features which provide for more efficient and effective use of the limited UHF spectrum resources. Operating in the UHF frequency band offers the warfighter capabilities for enroute communications/communications on the move, wider area earth coverage, and greater overhead foliage and adverse weather penetration, capabilities which are not possible in other frequency bands. The Army is the lead Service, responsible for the procurement of EMUTs for all Services and Agencies in order to meet the Joint Staff mandate to have Joint interoperability in DAMA and digital secure voice communications after FY96.

In FY97, as DoD Executive Agent for the Defense Satellite Communications System (DSCS), the Army will continue to modernize the current large fixed satellite ground terminals infrastructure. This modernization effort will improve ground terminal reliability to its original specification; reduce power consumption; and introduce semi-automation of manpower intensive functions (first introduced when DSCS terminals were installed in the late 1970s and early 1980s). While this modernization was initiated in 1990 for sustainment purposes, it is now supporting the current Army downsizing and reduced funding. These ground terminals will continue to support the high operational availability required for CONUS-based power projection Army and other Service deployed forces. In addition, these modernized terminals will carry out their mission at lower operation and maintenance costs. The FY97 R&D funds will complete the development of the medium data rate unit for the Universal Modem (UM) and procurement funds will initiate the UM acquisition. The UM will be the replacement for the 1980 deployed AN/USC-28 anti-jam modem that is installed in more than 100 DSCS locations and is becoming very difficult to maintain because of the unavailability of replacement parts. In addition, FY97 R&D will complete the DSCS Integrated Management System (DIMS) development and start the effort for the replacement BATSON equipment that provides the anti-jam command link that is essential for commanding the DSCS satellites in all environments, including jamming. R&D funds will continue to support the Integrated Test Facility at Fort Monmouth, New Jersey, which is a critical element in support of the DSCS program and a major factor contributing to the Army's ability to participate in the development of the future DoD Space Architecture. Finally, FY97 procurement funds will initiate hardware acquisition for the large fixed terminal family, the AN/GSC-52s, the last DSCS terminals to be modernized.

Currently, DSCS provides critical information transfer to our deployed warfighters at all echelons, as well as, high data rate secure information transfer in support of intelligence operations, electronic warfare, and smart

weapons. As the Military-Strategic/Tactical Relay (MILSTAR) system comes on line (to support a CINC and his Division warfighters), the DSCS future mission will be the information super highway between the sustaining base (CONUS) and the deployed warfighter at EAC.

The MILSTAR system remains one of our most critical command and control programs for the deployed Army warfighter at Echelons Corps and Below. MILSTAR will provide a worldwide, secure, jam-resistant communications capability that is urgently needed to prosecute warfighting missions horizontally and vertically at Corps and Division levels for special users. The Air Force launched the first two MILSTAR I Development Flight Satellites in February 1994 and November 1995, and continues to develop the MILSTAR II satellite, an essential element of the Army's assured communications connectivity to our deployed warfighters. The Army's MILSTAR terminal program will acquire two types of mobile tactical terminals for Army and other Service needs. The Low Data Rate Man-portable Terminal Program awarded the full scale production contract in February 1996 for more than 300 terminals to meet Joint Service needs. The medium data rate HMMWV-mounted terminal program awarded the LRIP contract in February 1996 and terminal deliveries are scheduled in phase with launch of the first MILSTAR II satellite in FY99. Each of these two awards was made under the full provisions of our acquisition reform initiatives, resulting in savings of almost 60 percent when compared to the original budget estimates.

A key element of any digitization architecture is reliable and secure digital data links between fighting systems and commanders. The combat proven Single Channel Ground and Airborne Radio System (SINCGARS), with both voice and data channels, is an important link in any digitization scheme.

Conduct Precision Strike

The Force XXI commander must have rapidly deployable capability to conduct deep attacks against enemy maneuver formations, logistical centers, and command and control nodes. To successfully attack targets with precision at extended ranges requires the capability to see deep, to find designated high-payoff targets, and then transmit that information/intelligence in near-real time to firing units employing advanced weapons and munitions systems to destroy those targets. To accomplish this, the Army must have modern artillery, attack helicopters, missile systems with adequate range and firepower, effective munitions, and superb Reconnaissance, Surveillance, and Target Acquisition systems among which are included reconnaissance helicopters such as Comanche and a family of modern UAVs.

Following are descriptions of systems and systems upgrades in development or in procurement that are key to *Conduct Precision Strikes.*

Crusader, formerly the Advanced Field Artillery System (AFAS) and the Future Armored Resupply Vehicle (FARV), is currently in DEM/VAL. It is the Army's top priority, next generation ground combat system, providing leap-ahead indirect fire cannon and artillery resupply systems for armored forces. Crusader will provide improved capabilities in range, rate-of-fire, time-on-target, accuracy, survivability, mobility, and ammunition handling speed with reduced manpower and logistics burdens. Crusader will use an advanced design armament system and is the "technology carrier" for other future armored systems -- employing robotics, advanced fire control computing techniques, self-protection features, and signature control. FUE is scheduled for FY05.

In FY97, the Army Tactical Missile System (ATACMS) Block IA, the extended range version of the combat proven ATACMS Block I, will begin full-rate production. ATACMS Block I will end production this year with fielding completed in July 1997. Last February, the Army successfully fired the first production representative model of the Block IA missile. Launched from McGregor Range in Fort Bliss, Texas, the missile flew approximately 175 kilometers to a target site on White Sands Missile Range in New Mexico. The test was highly successful and met all planned objectives. Flight tests continue this spring leading to an LRIP decision in May.

In July 1995, the Army awarded the contract for the continued development of the ATACMS Block II missile. ATACMS Block II will provide the means to attack and destroy moving and stationary threat targets at long-ranges with high precision. In combat, the system delays and disrupts enemy forces in the deep battle, thereby interrupting threat force planning for operations in the close battle area. During FY97, ATACMS Block II development continues with conduct of the critical design review, an engineering development test flight, and integration activities associated with the BAT, Brilliant Anti-Armor Submunition.

Continuing in EMD in FY97, BAT completes contractor development testing in preparation for integrated flight tests with the Block II missile. The BAT, a self-guided submunition, uses both acoustic and infrared seekers to locate and attack moving armored combat vehicles without human interaction. BAT submunitions, carried deep into enemy territory by ATACMS Block II missiles and dispensed over areas of high-payoff targets, autonomously detect, attack, and destroy individual targets. The FUE date for ATACMS Block II with BAT is FY01.

The BAT Pre-Planned Product Improvement (P3I) DEM/VAL continues in FY97 with captive flight testing of the two competing multi-mode seeker concepts. The BAT P3I, through seeker and warhead improvements, adds cold sitting armor, heavy multiple launch rocket systems, and surface-to-surface missile transporter erector launchers to the BAT target set. ATACMS Block II and IIA are the delivery vehicles for BAT P3I. The extended range ATACMS Block IIA missile begins development in FY98.

The ATACMS/BAT programs are currently undergoing a joint Army/industry initiative to reduce the overall cost. The President's budget request already incorporates initiatives from Phase I of the effort. These low risk initiatives resulted in a cost avoidance to the Army of $381 million. Higher risk initiatives in Phase II of the effort are still being evaluated. These initiatives include multi-year contracting and reinvestment strategies and have the potential to save $565 million for the Army through FY08.

Sense and Destroy Armor (SADARM) continues in LRIP. A product improvement program is scheduled to begin in FY97. The product-improved submunition is expected to yield a 30 percent increase in effectiveness. SADARM is a fire-and-forget, sensor-fuzed submunition designed to detect and destroy lightly armored vehicles, primarily self-propelled artillery. It is scheduled for fielding in FY99.

The Extended Range Multiple Launch Rocket System (ER-MLRS) is scheduled to begin LRIP in the fourth quarter of FY96 with FUE scheduled for FY98. The extended range rocket increases the range capability to 45(+) kilometers as compared to the current basic tactical rocket range of 30 kilometers. The program includes the addition of a low-level wind measuring device on the M270 launcher to enhance accuracy and effectiveness, and incorporates a self-destruct fuze on the submunitions to increase safety for friendly maneuver forces.

The Army is also continuing development of the MLRS Improved Launcher Mechanical System (ILMS) and Improved Fire Control System (IFCS) in FY97. These modifications have been linked to provide a one time major upgrade to all MLRS launchers starting in FY98. These modifications include an embedded GPS, upgraded fire control computer, improved launcher load module drive system, and improved built-in test equipment. These upgrades will increase crew/launcher survivability, reduce operation and sustainment costs, and mitigate component parts obsolescence.

Joint STARS is supported in FY97 to complete the Limited Production of Medium and Light models of the Ground Station Modules (GSM) while continuing with P3I to migrate

the system to a single Common Ground Station for use by all Services. The Joint STARS system has been a major contributor to the International Forces (IFOR) peacekeeping operation in Bosnia. Once again, the system has proven that its near-real time information collection capabilities play a critical role in total intelligence production and dissemination during peacetime and will provide the commanders superior targeting and battle management capabilities in future combat operations.

The FY97 annual buy of additional Paladins will allow the Army to provide this howitzer to all cannon active component artillery battalions and also to begin fielding to the 14 National Guard battalions. The Paladin overcomes many operational limitations and outdated technology of the current M109 howitzer and provides longer range fires and substantially improved survivability through "shoot and scoot" techniques. This program is a true representation of government and industry cooperation.

Army forces require modern munitions and the assurance that munitions expended in a conflict can be replenished in a timely manner. Army forces also require a steady supply of training ammunition to ensure soldiers are constantly ready to answer when called on to support our nation. The FY97 request fully resources the Army's requirements for training ammunition with a modest drawdown of war reserves, and continues an affordable build-up of modern munitions.

This nation requires a viable munitions industrial base to ensure ammunition supplies in peacetime and the capability to replenish ammunition stocks after a conflict. This industrial base is difficult to maintain in today's peacetime, resource constrained environment. The Army continues to work with industry to develop affordable and more efficient courses of action that provide for future needs.

The Army also requires an effective munitions logistics base to support operations in peace and war. The FY97 request contains resources to support a necessary demilitarization program which frees storage for serviceable munitions while helping to reduce storage sites in support of the Base Realignment and Closure (BRAC) `95 program.

Dominate the Maneuver Battle

Decisive operations require controlling vital land areas and the destruction of the enemy's land combat capability. The Army must always maintain a substantial overmatching capability in maneuver forces. It is in the maneuver battle that the risk to our soldiers is highest. Advanced weapon systems and technology will continue to proliferate around the world. To ensure swift, decisive

victory with minimum casualties, the Army combined arms team must be able to outthink, outmaneuver, and outshoot its adversaries day or night, in any weather.

Following are descriptions of systems and systems upgrades in development or in procurement that will help to ensure that we *Dominate the Maneuver Battle*.

The Army is pursuing a technology insertion approach to modernization by integrating digital and advanced infrared sensors into Abrams tanks and Bradley Fighting Vehicles and modifying the AH-64 Apache helicopter to the Longbow configuration with a leap-ahead day/night/adverse weather target acquisition radar, fire-and-forget HELLFIRE missiles, and advanced digital processors and communications. These upgrades are all compatible and will allow these systems to exchange friendly and enemy position data directly from video display to video display. In addition, all can link with scout helicopters and artillery fire direction centers, and transmit data directly to C2V and to ABCS components. This powerful linkage of combat systems allows the commander to provide a common view of the battle to all elements, speeds-up the tempo of maneuver, and reduces the potential for fratricide. It allows us to "dominate the maneuver battle" by dominating the information battle.

Javelin provides our soldiers a man-portable, highly lethal system against conventional or reactive armor threat. It features fire-and-forget technology with a range in excess of 2,000 meters in adverse weather, day or night, and weighs less than 50 pounds. The Army, in cooperation with its Joint Venture partners (Texas Instruments/Lockheed-Martin), continues an aggressive cost reduction program that will significantly reduce the total cost of the Javelin program by an estimated $1.4 billion. Savings will be achieved by reducing Javelin production from 14 to 11 years, taking the savings, and reinvesting them into the program. The program begins its full-rate multi-year production contract in FY97. A recent program budget decision to provide additional procurement money from FY99-01 will accelerate production duration from 11 to eight years which should result in additional savings.

The Improved Target Acquisition System (ITAS) for the TOW (Tube-Launched, Optically-Tracked, Wire-Guided) missile will complete EMD and enter LRIP late in FY96. Because of funding constraints, FY97 procurement funding has been combined with FY98 funding to maximize production efficiencies. ITAS will improve the target detection, recognition, and engagement capability of the HMMWV mounted and ground launched TOW missile by incorporating a Second Generation Forward Looking Infrared (FLIR) capability, a laser range finder, and aided target tracking features. This program is the pathfinder for Second Generation FLIR

systems and is the foundation for the IBAS (Improved Bradley Acquisition System). The high degree of commonality among Second Generation FLIR systems provides a strong production base and reduced logistics costs.

We continue to upgrade older M1 tanks to the M1A2 configuration. To date, more than 130 M1s have completed the upgrade process, and we have fielded 85 to operational units. We also are continuing the Bradley A3 upgrade program, and are working to bring this system on line more quickly. Longbow Apache continues in production in FY97. Currently, the Army is negotiating a five year multi-year contract as recommended by Congress. Once fielded, Longbow Apache's all weather target acquisition system will provide first-ever long-range detection and automated classification, prioritization, and target hand-over for the modernized Apache team and the other combat and command and control systems linked to it. For the first time ever, a coordinated, rapid fire, precision strike capability will be available to the maneuver force commander on a 24-hour basis in day/night/adverse weather conditions. Longbow HELLFIRE will continue in LRIP in FY97. The Army, in coordination with its Joint Venture partners (Lockheed-Martin/Westinghouse), has in-place an aggressive cost reduction plan that will reduce the production program from 10 to eight years while reducing the total procurement cost by a projected $860 million. The addition of the fire-and-forget Longbow HELLFIRE to our missile inventory will significantly enhance the survivability of our Apache helicopter fleet and provide the battlefield commander flexibility across a wide-range of mission scenarios.

The Grizzly, formerly the Breacher, program will continue in EMD in FY97. Efforts will focus on design refinement and prototype modifications. The system is based on the M1 Abrams chassis and is equipped with a full-width mine clearing blade and a power-driven excavating arm to support maneuver force mobility through minefields, rubble, tank ditches, wire, and other obstructions. The Army currently has no system with these capabilities. Its importance cannot be overstated because the Grizzly will provide the combined arms team with an integrated, counter-mine and counter-obstacle capability in a single, survivable vehicle.

In FY97, the Line-of-Sight Antitank (LOSAT) program remains in the technology demonstration phase to continue to mature the Kinetic Energy Missile (KEM) and Advanced Fire Control System. Numerous studies and analyses have suggested that the KEM's overwhelming lethality can help satisfy the critical anti-armor needs of our early entry forces.

The Army is committed to a Follow-on to TOW (FOTT) program, formerly called Advanced Missile System-Heavy (AMS-H), to address TOW stockpile depletion and provide the force increased range, survivability, and lethality to overmatch current, emerging, and postulated threats. Results from the Army's Anti-Armor Requirements and Resource Analysis clearly demonstrate that the FOTT missile gives the ground-based early entry forces and TOW-equipped Bradleys greatly improved lethality while making the entire force more survivable. The Army continues to fund critical efforts leading toward an engineering and manufacturing start in FY98. Requested funding in FY97 will support modeling, information flow to potential bidders and government test facilities as an opportunity for potential bidders to demonstrate the technical merits of their proposed hardware concepts.

Although the Army has no plans for continued TOW missile production, funding has been requested in FY97 to continue repairs to the missiles for increased effectiveness in cold weather; provide for support for deliveries of missiles procured in FY95; and initiate production line shutdown.

The Multi-Purpose Individual Munition/Short Range Assault Weapon (MPIM/SRAW) is the dismounted soldier's lightweight, shoulder-fired weapon for short-range/urban terrain combat. This weapon will have the capability to accurately fire at targets up to 500 meters distance, from enclosures or in a prone position, and thereby increase survivability. The robust warhead has the capability to defeat modern armored personnel carriers and incapacitate personnel in reinforced masonry buildings and inside bunkers. The Army and the USMC are partners in this cooperative development program which has reduced development and procurement costs. The Army's MPIM/SRAW program uses the same launcher and flight module as the USMC's Predator anti-tank program. This cooperative efforts will reduce development and procurement costs for both Services. FY97 funding continues EMD for the MPIM/SRAW program.

BATTLEFIELD DIGITIZATION

The creation of the digitized battlefield is critical to the Army's efforts to maintain a modern, but smaller, force capable of decisive victory -- Army XXI. In order to field Army XXI, we must employ digital information technology across the battlefield at all levels. Digital information systems provide the capability for a geometric increase in the amount of information gathered and the speed with which that information can be analyzed, tailored, and provided to the warfighters at appropriate levels of command.

Simply moving information around the battlefield is not the answer. The ultimate objective must be improved situational awareness to ensure integrated operations through all echelons within the Army and at both the Joint and Combined levels of warfare. Clearly, when a commander can rapidly see where his forces are, what condition they are in, make decisions and issue orders; he can concentrate combat power at the time and place on the battlefield to dominate the maneuver battle.

The Army has made significant progress over the last year towards developing and fielding a digitized experimental force, the EXFOR! An Army Digitization Master Plan guides the Army Digitization Office's efforts to provide information technology to redesign the Army by the year 2000. During the last year, the Army has conducted two key experiments with digital information systems: one with mechanized troops at Fort Knox, Kentucky, and one with light infantry at both Fort Drum, New York, and the Joint Readiness Training Center at Fort Polk, Louisiana. We gained great insights into the value of digitization for enhancing mission planning, decision making, execution, and increasing tempo on the battlefield. The Army has developed and approved the Army technical architecture, which is "building code" for Army command and control systems. As mentioned earlier, the Army's technical architecture is being used as a start point for development of a DoD/Joint technical architecture. This will greatly enhance integration among the Services.

At the brigade and below level, we are experimenting with an appliqué to bring digitization quickly into the Army. The prototype appliqué sets are currently being installed on EXFOR systems at Fort Hood, Texas, in preparation for the kickoff of the brigade level AWE. The appliqué, along with programs to upgrade digital systems on the M1A2 Abrams Main Battle Tank and the M2A3 Bradley Fighting Vehicle to an open architecture, will lead to a seamless digital communications architecture from the tactical to the strategic level and set the stage for a successful development of Army XXI.

Emerging systems such as Joint STARS, Comanche, and Crusader will enhance the digital systems as they are fielded. They will be brought on line under the rules of the architectures in place and be more cost effective as a result. The future battlefield will link the force at every level and across the globe. Space and sea information will be gathered and analyzed with the ground force information and tailored for every level of operations from the corps commander to the squad leader. Commanders will be able to

"see" the logistical status of their units in real time. Digitization will speed the tempo of the battle and increase lethality and survivability of all friendly formations.

ARMY SCIENCE AND TECHNOLOGY STRATEGY

To ensure that the Army science and technology (S&T) program is consistent with National Security, Defense, and U.S. Army requirements, the *Army Science and Technology Master Plan* (ASTMP) is prepared annually. This strategic plan for the S&T program is based on the Army leadership's vision of the future Army, as constrained by realistic funding limits. It serves as "top down" guidance from the Headquarters, Department of the Army, to all Army S&T organizations, and it provides a vital link from the Defense S&T Strategy and Defense Technology Area Plan to the Army major commands, major subordinate commands, and laboratories. We are vigorously supporting the five S&T management principles articulated in DoD's S&T Strategy:

1. Transition technology to address warfighting needs;
2. Reduce cost;
3. Strengthen the commercial-military industrial base;
4. Promote basic research; and
5. Assure quality.

The Army S&T vision is to:

- Provide demonstrations of affordable weapons system concepts that meet the warfighter needs by being responsive to diverse, new-era threats and the requirement for force projection.
- Provide a world-class network of government and private S&T capabilities that can maintain land warfare technology superiority, exploit rapid advances in information technology, and provide the Army with a smart buyer capability.
- Encourage reduced cost to the material acquisition process through the early retirement of technical risk and requirement uncertainty and through support for acquisition reform.

The Army's S&T program is designed to provide the technology to support the Army's vision for the future, Force XXI, and to provide opportunities to reduce casualties across the spectrum of possible conflict.

The *Army S&T Agenda* to support this vision is to:

- Comply with the Defense S&T Strategy and Army Force XXI vision.
- Conduct "world-class," relevant research.

- Strengthen the requirements process through:
 - System of systems demos
 - Advanced Technology Demonstrations (ATDs) and Advanced Concept Technology Demonstrations (ACTDs)
 - Synchronization of S&T with Training and Doctrine Command (TRADOC) AWEs and DoD Joint Warfighting Experiments (JWEs)
 - The Advanced Concepts and Technology II (ACT II) program.
- Provide affordable options with a focus on system upgrades.
- Improve technology transition -- the coupling of S&T to development programs.
- Improve technology transfer and "spin on" by forming partnerships with academia and industry.
- Stabilize S&T priorities and funding.
- Improve program execution and oversight.
- Attract, develop, and retain quality scientists and engineers.
- Downsize the infrastructure.

RESOURCING THE STRATEGY

The Army strives to maintain stable funding for the Army's 6.1, 6.2, and 6.3 programs, consistent with the long-term nature of basic and applied research. However, because we must protect readiness and the quality of life of today's force the FY97 budget request is 2.2 percent lower (4.4 percent lower considering inflation) than the FY96 request and 8.3 percent lower (10.3 percent lower considering inflation) than the FY96 appropriation. Today's modernization investment decisions will determine the legacy we leave future commanders and their troops and will determine the readiness of Force XXI to deal with agrarian, industrial, and/or Information-Age enemies in the future.

In the *basic research* category (6.1), the Army maintains a strong peer-reviewed scientific base through which the underpinnings of land warfare technology can be further developed. Peer reviewers include many of this nation's leading scientists and engineers from the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and the Army Science Board. In addition to conducting in-house research, Army scientists monitor developments in academia and industry and evaluate the many proposals received for 6.1 funds.

The *applied research* category (6.2) focuses on specific military needs and develops the concepts and components to enable a variety of weapons system applications. We are vigorously pursuing the following three high priority technologies cited in the Defense S&T Strategy: information technology; modeling and simulation; and sensors.

The final S&T program funding category-- *advanced technology development* (6.3)--provides the path for the rapid insertion of new technologies into Army systems, be they new systems or product improvements. In the 6.3 category, components are integrated and experimental systems are demonstrated to prove the feasibility and military utility of the approach selected. It is the 6.3 program that funds our ATDs and ACTDs. In recent years the Army has increased its commitment to system of systems demonstrations which seek to identify the lowest cost approach to accomplish a particular mission. These programs have central oversight and often include a number of separate ATDs. With supplementary OSD funding for leave behind equipment, many of these have now been converted into ACTDs.

Advanced Technology Demonstrations (ATDs)

ATDs are characterized by the following: large-scale both in resources and complexity; the operator/user involved from planning to final documentation; tested in a real and/or synthetic operational environment; finite schedule, typically five years or less; cost, schedule, and objective performance baselined in an ATD Plan approved by the Deputy Assistant Secretary for Research and Technology; and exit criteria agreed upon by the warfighter and ATD manager at program inception before the technology in question will transition to development. Active participation by the user, as well as the developer, is required throughout the demonstration. A simulation plan and at least one demonstration at a TRADOC Battle Lab is required. This enables the user to develop more informed requirements and the materiel developer to reduce risk prior to the initiation of full-scale system or upgrade development. ATDs seek to demonstrate the potential for enhanced military operational capability and/or cost effectiveness. ATDs are developing and demonstrating critical technologies ranging from digitization for the dismounted warrior to integrated survivability for future rotorcraft and armored vehicles.

Since the Army first approved ATD programs in FY90, we will have completed a total of 19 by the end of FY96 and transitioned a variety of technologies into development or other Army uses. Examples range from the first soldier-based communications capability now being manifest in the Land Warrior EMD program, to the technology underpinning distributed interactive simulation, to our first ever capability to remotely detect mine fields and clear off-

route mines. Additionally, many of our ATDs have helped the Army enlarge its dominant battlespace knowledge through better sensor-to-shooter linkages, target recognition, and sensor fusion.

Advanced Concept Technology Demonstrations (ACTDs)

ACTDs are jointly planned by the warfighter and acquisition communities. They allow operational forces to experiment in the field and in simulation with new technology and concepts to determine potential improvements in doctrine, training, leadership, organizations, tactics and warfighting concepts. A CINC sponsor is required. Following successful demonstration with the sponsor, the capability is rapidly prototyped and left for up to two years with the CINC, thus giving him an interim, stay-behind capability pending formal acquisition decision. The Army has four approved ACTDs:

1. *The Precision/Rapid Counter - Multiple Rocket Launcher ACTD* is developing and demonstrating a system-of-systems concept that integrates surveillance, target acquisition, command, control, communications, weapons delivery, and combat assessment functions for counter battery operations against a mobile threat that can hide in caves. Successful experiments have already been conducted at Fort Hood using the Army's Integration and Evaluation Center near Fort Belvoir, Virginia, to coordinate the combination of simulation and live exercise. Later this year there will be a demonstration in Korea of a much improved counterfire capability against simulated enemy long-range, multiple rocket artillery operating from heavily fortified and protected positions in mountainous terrain. Emerging technologies will be integrated with advanced concepts and doctrine to ensure timely and responsive target acquisition and streamlined command and control to destroy enemy multiple rocket launchers swiftly, thereby protecting our troops in South Korea.
2. *The Rapid Force Projection Initiative (RFPI) ACTD* is demonstrating technologies, concepts, and tactics to permit our lift-constrained early entry forces to defeat heavier forces without compromising their deployability. RFPI employs a "Hunter/Stand-off Killer" approach which relies on forward deployed sensors connected to lightweight, precision, indirect fire weapon systems to attack an enemy armored force beyond direct fire range. Several stand-off killers will be evaluated, including the High Mobility Artillery Rocket System (HIMARS) and guidance for the MLRS, guided mortar rounds, smart mines, and the Enhanced Fiber-Optic Guided Missile (EFOG-M). Simulations by TRADOC and government contractors have shown high potential for the RFPI approach to improving the survivability, lethality, and deployability of our

"first to fight" forces. A major field exercise to validate the hunter/stand-off killer concept for light forces is scheduled for FY98.

3. *The Joint Countermine ACTD* is a joint effort by the Army, USMC, and Navy to demonstrate improved technology, concepts, doctrine, tactics, and organizations to counter the mine threat from the sea, across the beach, and inland. The Army has the lead for the detection and neutralization of the landmine threat. The emphasis is on remote detection and neutralization, both by vehicle mounted and dismounted approaches.
4. *The Joint Combat Identification ACTD* is an Army lead, all-service effort to demonstrate a joint, integrated air-to-ground and ground-to-ground combat identification ability. The ACTD will quantify the contributions of identification techniques and improved battlefield situation awareness to reduce fratricide and increase combat effectiveness. Specific technologies included in the ACTD are: a BCIS pod for fixed wing and rotary wing aircraft for point-of-engagement friend identification; enhanced forward air controller capability with integrated BCIS and Situation Awareness Data Link (SADL); modified SINCGARS System Improvement Program (SIP) radios that will provide automatic target location query for friend identification; and situation awareness data from the digitized battlefield delivered to the gunner's sight.

SCIENCE AND TECHNOLOGY OBJECTIVES

To better focus our scarce S&T resources on the customer's highest priority needs, the Army has established a set of 200 Science and Technology Objectives (STO). Each STO states a specific, measurable, major technology advancement to be achieved by a specific fiscal year. It must be consistent with the funding available in the current year budget and the Program Objective Memorandum (POM). Only major, measurable, and foreseeable objectives are designated as STOs. Not every worthwhile, funded technology program is cited as a STO because the Army must reserve some program flexibility for the laboratory or Research, Development and Engineering Center (RDEC) director to seize opportunities within his or her organization, based upon the organization's local talents and resources.

As is the case with ACTDs and ATDs, STOs are used by the Army S&T community to focus the program, practice management by objectives, and provide feedback to our scientists and engineers regarding their productivity and customer satisfaction. STOs are reviewed and approved annually.

TECHNOLOGY TRANSFER

The Army continuously monitors new developments in the commercial sector looking for military applications. This "spin-on" of technology is of growing importance to the Army S&T program -- not only from the domestic R&D programs but also from development overseas. The Army has two commercially focused programs to leverage technology for application to Army platforms: the National Automotive Center and the National Rotorcraft Technology Center. Both of these centers involve a small in-house staff monitoring contractual R&D efforts.

Other Army initiatives strengthening technology transfer include:

o *Cooperative R&D*: It is Army policy to actively market technology that can benefit the public and private sectors as long as the technology clearly has applicability to Army needs, and to respond quickly to requests for technical assistance. The mechanisms for accomplishing this are Cooperative R&D Agreements (CRDAs), the Construction Productivity Advanced Research (CPAR) program, Patent Licensing Agreements (PLAs), and technical outreach programs. The cumulative Army totals from 1988 to 1996 are 690 CRDAs, 71 CPAR agreements, and 55 PLAs. Of these 816 agreements, 487 were still active as of 1 March 1996. The Army has more cooperative agreements than all the remainder of DoD combined.

o *SBIR Programs*: The Small Business Innovation Research (SBIR) Program was established in 1982 by Congress. The Army is a key participant in this DoD-wide program to stimulate technology innovation in small businesses to meet Federal R&D needs. The FY95 Army funding for this program, which has had some remarkable successes, was $90 million, which includes $4.6 million for the Small Business Technology Transfer (STTR) program. Our estimated FY96 program is $86 million, including $6 million for STTR.

o *University Research Centers*: The policy is to further Army basic research objectives by leveraging research programs in our world-class academic institutions. To accomplish this, the Army Research Office in Research Triangle Park, North Carolina, sponsors research through the Army Center of Excellence Program and through the Defense University Research Initiative. Through these programs the Army focuses active research participation with more than 20 American universities.

o *Advanced Concepts and Technology II (ACT II) program:* The ACT II program, begun by Congress in FY94, continues to fund competitively selected proposals from industry to demonstrate promising technology, prototypes,

and nondevelopmental items of keen interest to all the TRADOC Battle Labs. The program provides seed money (a maximum of $1.5 million) for one year, proof-of-principle demonstrations of relatively mature/high-payoff concepts proposed by non-Army sources. In 1994, ACT II funded a total of 28 projects, and in 1995 we supported an additional 35 efforts. We expect to initiate another 24 new starts in 1996 for evaluation by the TRADOC Battle Labs.

PROJECT RELIANCE

In November 1991, all three Service Acquisition Executives directed full implementation of Project Reliance in their respective Services. In November 1995, the Director, Defense Research and Engineering joined the Services and Defense Agencies in the Reliance process. She formed the Reliance Executive Committee to strengthen Reliance's role in the DoD strategic planning process and continue to improve Service/Agency S&T coordination. Implementation of Defense S&T Reliance also responds to (and provides inputs for) a number of important management functions and planning processes including the budget planning process and development of technology investment plans through the *Defense Technology Area Plan*, and updates of the *Defense S&T Strategy*.

The goals of Defense S&T Reliance are to:

- Enhance S&T;
- Ensure critical mass of resources to develop "world-class" products;
- Reduce redundant capabilities and eliminate unwarranted duplication;
- Gain efficiency through collocation and consolidation of in-house work, where appropriate; and
- Preserve the Services' mission-essential, Title 10 capabilities.

Managing technology development is a dynamic process, and the S&T activities of the Services and Agencies are not islands unto themselves. The notion of "leveraging" is based on a simple fact: The Services' individual S&T accounts cannot fund all the R&D activities that any one Service needs.

INFRASTRUCTURE

Laboratories and RDECs are the key organizations responsible for technical leadership, scientific advancement, and support for the acquisition process. Working at a diversified set of physical resources, ranging

from solid-state physics laboratories to outdoor experimental ranges, these personnel conduct research, develop technology, act as "smart buyers," and provide systems engineering support to fielded systems for the total Army.

The Army is consolidating laboratory and R&D center facilities, eliminating aging and technologically obsolete facilities, and leveraging relevant facilities of contractors and the other military services. From FY89 to FY99 the Army will close seven sites out of 31 labs and RDECs through BRAC decisions and reduce our in-house lab/center by 28 percent. Our in-house facility investments are focusing on those unique capabilities that truly must be owned by the Army itself.

Converting the Army Research Laboratory to an open, federated laboratory system is a major initiative that has caught the imagination and strong support of government, industry, and university researchers and leaders. The Army awarded three cooperative agreements in January 1996, establishing Federated Laboratories: Advanced Sensors, Advanced Displays, and Telecommunications. Partners include Lockheed Sanders, Rockwell International Corporation, and Bell Communications. Besides these industrial partners, each consortium as a minimum consists of at least two academic institutions, one of which is an Historically Black College or University or Minority Institution. The partnerships will focus on basic research using facilities that already exist in the government, in industry, and in universities. The Army Research Laboratory is in the process of developing the definitive plans to be collaboratively executed over the next 12 months. Following the lead of the Senate Authorization Committee, the Army will await clear evidence of success with these partnerships before proposing to expand this initiative. Meanwhile, the Army need for software and simulation technology will be pursued through more traditional means.

Highly motivated, competent, well-trained people are essential to the success of the Army S&T strategy. Keeping the in-house work force technically competent in a rapidly changing environment is a high priority objective for the future. The Reinvention Laboratory initiative allows revised procurement rules and personnel initiatives which will assist in meeting the challenge. Allowing Army scientists and engineers to perform more research at the bench has long been recognized as the number one recruitment and retention factor. Letting them share that bench with the best in class from industry and academia via the open, federated laboratory initiative will clearly strengthen the smaller Army laboratory system of the future.

ACQUISITION REFORM

Acquisition reform is absolutely critical to our modernization program and the future readiness of the force. In our resource constrained environment, we must acquire our weapon systems and equipment, supplies, and services far more efficiently than in the past. Each year, the Army places more than $32 billion on contract. By creating efficiencies within our own operation, we will provide badly needed savings to reinvest in modernization and other high priority needs.

The Army is making steady progress. We have been working hard to get as much of acquisition streamlining reform and better business processes into the procurement and acquisition system from all fronts as quickly as possible. Much has been accomplished, including the elimination of military specifications, the adoption of commercial and performance standards, and reduced internal management. We are reaching the point where this needs to be viewed as continuous process improvement rather than radical reform. We need to constantly improve and streamline the acquisition system.

The Army S&T program is contributing in several ways. Our ACTDs will contribute by getting small quantities of new equipment quickly to our operational forces for a two year period, directly providing a limited go-to-war capability. S&T support of our AWEs is helping the Army evaluate non-developmental and commercial technology solutions. Finally, closer coupling with the Program Executive Officer (PEO) organizations and more robust risk reduction within the S&T domain is permitting a combined Milestone I and II for selected programs with a transition directly from S&T to EMD. The elimination of DEM/VAL phase results in significant savings in time and cost.

Comanche is a model program for acquisition reform initiatives. We have eliminated all non-essential military specifications and streamlined the test plans. The Army decided to build only two early flight test models, formerly called the DEM/VAL phase, and immediately proceed, using the same two early flight models, to EMD. Essentially, we combine DEM/VAL and EMD into one phase. With success there, we will buy six pre-production models. These will go to our troops in the field as Early Operational Capability (EOC) systems. Upon completion of that evaluation, we will do a limited IOT&E and move right into LRIP. The cost savings are significant.

How can we do this? There are two reasons. One, entrepreneurial management in the Army and industry knows that we don't need to create a superfluous trail of paperwork and associated expense. Second, modern,

simulation-based computer-aided design techniques. This allows the entire aircraft to be designed right down to the last nut and bolt and tested through simulation. Then, when the Army releases the build to parts the first time, the rework and scrap rate is minimal. The first helicopter in the air is very close to the final production model.

We have identified substantial savings as the result of acquisition reforms applied to missile systems. The Army conducted an intense cost reduction study before entering production on the Javelin. We used all of the streamlining methods, including an Integrated Product Team. The net result was a savings over the number of missiles we plan to buy of $1.4 billion or roughly 12 percent of this $12 billion program. Similar savings are being realized in the Longbow HELLFIRE and ATACMS/BAT programs. As I mentioned earlier, we also have realized remarkable savings in our ground terminals for the MILSTAR satellites.

We have also significantly streamlined acquisition operations. The Army Materiel Command (AMC) has reduced the time it takes to award a contract by 29 percent and the time it takes to deliver a product by 38 percent. We are aggressively expanding the use of credit cards with a goal that they be used for 80 percent of all purchases under $2,500.

The Congress has assisted us considerably in these endeavors, notably by passage of the Federal Acquisition Streamlining Act of 1994 and the Federal Acquisition Reform Act of 1995, enacted as part of the National Defense Authorization Act for FY96.

In terms of process, we are doing our very best to energize, educate, and solicit "buy in" from our acquisition entities in the field. The managers and their staffs in the field are where the action really happens, and we are empowering our work force to practice acquisition reform initiatives. One of our primary vehicles is the Army Roadshow series. There has been highly active involvement by all senior leaders in the Army. With Roadshow IV, we traveled to 10 sites throughout the United States with three-day seminar/workshops to train our personnel on performance specifications and best value source selection. We also trained with industry. Roadshow V began in March at the Army Missile Command in Huntsville, Alabama. This is the first of 13 sessions planned in 1996. This series has been so successful that our sister Services have adopted the Roadshow format and content.

The Army is presently reengineering our Acquisition Corps, both military and civilian. Our vision is to develop a small, premier professional corps of acquisition leaders, willing to serve where needed, and committed to developing,

integrating, acquiring, and fielding systems critical to decisive victory for the 21st century. Congress has provided a tool to help accomplish this goal. The Acquisition Work Force Personnel Demonstration Program in Section 4308 of last year's Defense Authorization Act provides the authority to suspend personnel laws and regulations governing the acquisition work force that may impede our acquisition mission and to replace them with reengineered processes of our own design. This authority will prove immensely valuable in instituting a cultural change and will allow us to evaluate improvements in personnel policy designed to enhance the quality, professionalism, and effectiveness of our acquisition work force.

To the extent that we can eliminate superfluous, defense-unique processes and standards in our acquisition, we will truly be able to buy more from the total industrial base of the country, not just from defense-unique industry. This has huge potential advantages. One, technology in most areas is now led by commercial industry, not by the government. This is particularly true in electronic components, computer architecture, information systems and software, telecommunications, and automotive technology, all of which are critical in every Army system. Two, we can leverage off the R&D base of commercial industry and buy items already developed, thereby devoting more of our RDT&E dollars to unique defense technologies. We are already well along in these endeavors.

Secretary of Defense Perry has highlighted the success of the Army's acquisition reform efforts on the Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T). By introducing competition during development; reform initiatives such as reduced data requirements and failure free warranty; Jointness; and stable funding; the program cost was reduced from an early estimate of $790 million to a FY96 contract award for less than $250 million. Another acquisition streamlining success is the Near Term Digital Radio (NTDR), which we are currently testing. The recent contract provided radios for test and experimentation at one-quarter the cost of other digital radios. What is of great interest here is the radio's open architecture, which allows us the flexibility to insert new information technology as it becomes available.

There are many other examples. Our Special Forces in Bosnia were in need of light cold weather clothing. In the interest of time, we went strictly commercial off-the-shelf. In less than six weeks, 1,200 sets of four layers of clothing were delivered to Fort Bragg, North Carolina, at a cost of $187 per set. This represented a 64 percent savings over a 1994 market survey on the cost of lighter cold

weather clothing. In addition, these sets were 16 percent lighter with 45 percent less bulk than the Army's existing extended cold weather clothing system.

CONCLUSION

As we complete the drawdown of our armed forces, we are devoting a larger share of our limited defense resources to readiness and quality of life programs for our men and women in uniform. Money for modernization is tight. Our concern is for the future readiness of the force. Today's modernization is tomorrow's readiness.

As we look to the turn of the century, we must increase our investment in modernization, and the Army's current plan does as we go from $10.6 billion in FY97, to over $12 billion in FY99, and nearly $15 billion in FY01. It is our solemn responsibility to ensuring that our men and women are well-equipped and have the decisive advantage they need to deter or win decisively in future conflicts. Today's soldier is well-equipped. Tomorrow's soldier deserves no less.

With your support, we will continue to provide our soldiers with world-class equipment. Thank you for your attention this morning, and thank you for helping to keep America's Army the premier land force in the world.

Mr. DECKER. Gen. Ed Anderson, the Assistant Deputy Chief of Staff for Operations and Plans [DSOPS] for Force Development, will conduct the briefing on Comanche.

General ANDERSON. Mr. Chairman, ladies and gentlemen of the committee, thank you very much for the opportunity to talk to you about Comanche.

This has been a good year for Comanche. We have been able to find things this year and I would like to lay that out for you. Part of that success is due to the money that you provided to us last year, in the way of a plus-up for the Comanche Program.

First of all, we have redesigned the strategy for developing the Comanche to include an early operational capability, and I will tell you more about that in detail at the end. But it has been approved by Department of Defense [DOD] and it has been approved by the Joint Requirement Oversight Council [JROC] and the Joint Chiefs of Staff.

We do have a prototype aircraft. It is flying. We tried to bring it through the gate but the gate guard wouldn't let us bring it in here and show it to you. But you will see it, and you saw it in the film. It is on cost and it is on schedule, and the program is still positioned for acceleration if that's what we choose to do.

It is very important to understand that the Comanche brings to the battlefield and brings to the commander the capability to integrate the joint warfighting. For the maneuver commander, he has the capability with the Comanche to perform armed reconnaissance, a very limited deficiency that he has right at the moment.

He also has the capability to go deep, attack deep, and return as well. He can see the battlefield and he can transmit data to and receive data from the other members of the joint team. He also has the capability to attack deep with his own system, but also to coordinate the attack of other systems in deep attack or in precision targeting with the systems he has on board. He also has automated situational awareness and he has the capability to develop command and control of fires, as well as all the other elements necessary on the battlefield.

Now, there is a need for the Unmanned Aerial Vehicle [UAV], too. The Comanche will not replace the UAV and the UAV will not replace the Comanche. The UAV has a role, even though it has a limited payload. It is not armed, but it is necessary to provide tactical information to the commander.

However, the Comanche provides additional capabilities. It has, as I mentioned, the capability to do armed reconnaissance, a very important effort for the commander, because it gives him the capability, with a man on board the Comanche and the systems that he has, to develop the situation. So, depending upon what he finds out there, he can either just track the force or engage the force. It provides a number of options now to the commander that he would not have if he had only the UAV.

In addition to that, it provides the capability for the commander to provide security to the force, so that as they find elements out there, if necessary, and they are threatening the execution of the force or the mission and the security of the force, then the Comanche can engage them. So there is a role for both the UAV and the Comanche on the battlefield of the future, as we see it.

We have done an awful lot of study looking at that particular issue, as well as the Comanche in its entirety. We have done about 14 independent studies and two cost operational and effectiveness analyses. We have done it in a wide variety of scenarios to include Southwest Asia, Korea, Europe, and Central America. We have done it against a wide variety of sophisticated threats projected to the years 2005 to 2010, and in every case, the results of the study have indicated that the Comanche is much more effective than the current fleet, using a wide variety of measures of effectiveness, and clearly indicate that the force, not just the helicopter, but that the force, as a whole, is much more effective in terms of killing capability and survivability.

The Comanche brings a multitude of capabilities to the battlefield, as I tried to describe for you, which gives us the capability to provide overmatching capability on the battlefield. He has the capability to see farther than the enemy, which obviously then allows us to engage the enemy first and kill him, in many cases before he's even had a chance to see the aircraft.

He also has the ability with his [IFF]—Identification Friend and Foe—to identify potential targets at 2 miles, which gives us the capability then to reduce fratricide, obviously. It is also designed to survive. It has the low observable technology which provides improvements in all four spectrums, to include infrared, radar, visual, and acoustic improvements, and then it also incorporates technologies that give us thrash, NBC, Nuclear Biological and Chemical and ballistic protection above the current system.

As an example of some of the technology that we have on board, if you were to look at the radar cross-section of an AH 64, our current Apache attack helicopter, it would equate to a wall about 20×20 feet; whereas on the radar screen, relative to that, the Comanche would look like about a half a piece of paper. It is that much better in terms of the radar cross-section which provides, as you might expect, significant improvement in the survivability.

In addition, with the multitude of advance sensors that he has, this will give you an idea of the improvement that he has with his second generation, forward-looking infrared sensor. This is what we currently look like, and as you can tell, you can basically not distinguish what the target is out there. But with the sensor that he will have on the Comanche, you are not only able to see but to discriminate exactly what that is, a tracked vehicle or a BMP. So, in essence, the Comanche provides those battlefield conditions that are necessary to overmatch the enemy.

Now, the Comanche provides other advanced technologies to this program as well, and that is in reducing the ownership burden. If you compare what we currently have over a 20-year life cycle against the Comanche fleet, our estimates are that we will be able to save $20 billion in operating costs.

We have employed the technology in here to reduce our maintenance problem. An example of that is right here. This is a computer that the maintenance technician for the Comanche would use as opposed to the 20 feet of manuals and other tools and things like that that he would have.

In addition, we currently use a tool box that has about 18 tools in it to change the engine on the current aircraft. This is the tool

kit to change the engine on the Comanche, just six tools. It really can be done with that. That's what we use.

Other technology, this is the current wire bundle that you will see in our aircraft. That's been replaced, that much information, with this, a fiber optic cable.

Those are examples of some of the technology that we are employing in the Comanche helicopter which ultimately will give us the capability to reduce the burden and help the training for the system, and keep the system flying 25 percent more than the current aircraft.

This is the restructured Comanche Program that we have developed as a result of the reductions that were imposed on the program a little over a year ago. This is an executable program. There are several elements that are important here. We've got two prototypes, as you know, and as we've mentioned, we already have one. It has made its maiden test flight and will be flying at the end of next month.

We also intend to field in fiscal year 2001 six early operational aircraft. They will be armed with a reconnaissance mission package, and they will then be given to the field and we will be able to do some testing and experimentation and development of tactics, techniques, and procedures with this tremendous capability that we will have with that.

That then will be molded in, as well as the armed reconnaissance and attack mission equipment package, which will give us then at that point in fiscal year 2004 six early operational capabilities, but they will be full up first.

Ultimately, then, we will give those again to the field and they will again refine the package, techniques, and procedures. Ultimately we will have production decision in 2006, which would result then in putting the helicopter and giving the divisional capability by the year 2007 under the current funding profile.

Sir, that concludes my briefing. Thank you.

Mr. DECKER. Thank you, General Anderson. Very, very fine.

Sir, at this time, if I may, I would like to introduce the other three members of our team, and then we invite your questions and we'll answer them as candidly as we can.

First, you've met General Anderson. He's the Assistant Deputy Chief of Staff for Operations and Plans for Force Developments. We work very closely with him on prioritization items for the warfighters. You know General Hite and myself.

I would like to introduce Lt. Gen. Otto Guenther, Deputy Chief of Staff of the Army for Command, Control, Communications, and Computer Systems. General Guenther wears two hats. He's a deputy to me for acquisition matters in the C^3—Command, Control, and Communications—arena, and he reports directly to the Chief of Staff and the secretary on policy and operational communications matters.

Dr. Fenner Milton is Deputy Assistant Secretary of Defense and reports to me for all of our science and technology programs. We appreciate you having us.

Sir, that concludes our statements and we invite whatever questions you would care to ask.

Mr. HUNTER. Thank you very much, Mr. Decker, and gentlemen. Thank you for the excellent presentation on Comanche. I think we've got quite a few questions on that program. I think Mr. Spratt in particular has a number of questions.

First let me ask a basic question that I think every member who reads the newspapers and gets feedback from the administration is concerned with. Last year, after we put our bill through, we were chastised by DOD for adding pork to the authorization and appropriation acts. Most of the adds that we made in the Army accounts went to trucks, ammo, and helicopters.

I would like you to tell me, Mr. Decker, if those were needed equipment or pork, in your estimation.

Mr. DECKER. On those three specific items, I think, unambiguously—and if you go back and check the questions we answered during official testimony in the budget hearings, through the various committees, statements we have made in public, those three items were items where, with the budget we had, we were bleeding pretty badly.

I stated on many occasions that when I accepted this job I thought the complexities of the job would be in the precision guided missiles and the advanced technologies, which is the background I come from, and, indeed, those are complex. But I found that our toughest holes were trucks. So I have become a most ardent truck salesman for the Army.

I am pleased to report that even Deputy Secretary of Defense White, in a speech not too long ago to the Air Force Association, said fighters are important but so are trucks. Trucks, ammunition, and helicopters are vital to the Army, and not one dime that you added is not needed.

In my opinion—and I don't have a precise statistic—but in reviewing the final appropriations budget that came out, and then the authorization bill that was finally passed, where there were adds compared to our budget submission, I would say somewhere between 80 and 90 percent were things we needed. Not 100 percent. That's the way the system is.

Mr. HUNTER. Thank you, Mr. Secretary.

You were quoted earlier as saying that the biggest hits have come in the procurement account. What were those hits?

Mr. DECKER. Well, in terms of looking at the budget declines over the last few years that you've aptly pointed out in your opening remarks, and you look at where we are in the budget submissions for 1996 and the constrained resources that we have, we have seen a big drawdown—and we needed one. We don't need the cold war force any more.

But in the totality of the total research, development, and acquisition budget, it's the procurement things, where we have items we can procure in field, that are no longer in development, where the hits have occurred. The biggest ones have been in tanks, a variety of combat service support equipment, trucks and ammunition. Those were the accounts where we're hurting the worst in last year, and probably still are this year. And those are procurement items, not R&D items.

Mr. HUNTER. I have been working with some of your people on the ammo accounts, as has the gentleman from Missouri. We need

to continue that analysis and discussion because there may be some problems there.

Let me ask a couple of fast questions about the Comanche presentation that you made, the added capabilities. I was somewhat surprised by the reduction in signature. I thought that was pretty dramatic, although I don't know exactly, in practical terms, if that means that Comanches aren't going to be seen and shot at, just because they're smaller in signature than the giant wall that's presented by Apache. But most of the battlefield integration assets that Comanche brings appear to be things that are a function of the technology and the electronics and your processing capability, things that could be involved in upgrades up through the other systems.

For example, you can digitalize—and I think we are digitalizing—the Kiowa Warrior, is that right?

Mr. DECKER. Yes, sir.

Mr. HUNTER. OK. So when people say we bring the digitalized battlefield with Comanche, the first thing that comes to the guys that are writing the checks is, "well, do we have to spend a billion bucks in the airframe to get the digitalized aspect of it?" That answer may or may not be yes.

So, to be a devil's advocate for a minute, if the real advances are in electronics and our processing capability and those things—that's where the technology is really leaping every couple of years—why can't we evolve those aspects of technology without imprisoning them, if you will, in an airframe system that can't be fielded for years and years? Why not take a frame that exists now and evolve that system through it as fast as possible?

Mr. DECKER. I believe we're doing that, to the limit of the ability. You're correct. The major advances in almost all of our weapons systems, but not totally all the advances, are in the field of sensors, electronics, computers, and the handling of information to make the total weapons system more effective, unquestionably.

But when you look in the specific case of your question, at the mission profile we want our armed reconnaissance helicopters to be able to handle—the current best system we have to do helicopter-borne mission equipment reconnaissance, and it doesn't do armed reconnaissance, is the Kiowa Warrior. Now, it's a very fine machine, but it's an old airframe. If we want to subject it to the mission profile that we're talking about for Comanche, both in the deep attack and the stealth operations and the armed reconnaissance role, which we think is vital and what General Anderson described, it needs substantial jacking up of power and other things to be able to handle those missions.

It is a fine machine, but it won't handle the mission profile of Comanche, so it leaves a big void in the armed reconnaissance field.

Mr. HUNTER. It's obviously armed. The Kiowa Warrior has——

Mr. DECKER. Very limited armament compared to what we're going to do with the——

Mr. HUNTER. Why don't you give us a brief description of the armament that Comanche carries in comparison to the Kiowa Warrior and to the Apache.

Mr. DECKER. I'm more familiar with the Comanche in detail than Kiowa, so I will ask some of my colleagues here to mention the Kiowa.

The armament is not the risk item in Comanche, but it is a very significant item for the total mission. If Comanche is moving into the armed reconnaissance role, it carries the Hellfire missile. It can carry both versions of the Hellfire. It carries them closed in a bomb bay to preserve the stealth capability until you're ready to use the weapons. And then the bomb bay opens and a rail comes out. I believe the mission payload of Hellfire is up to eight. It also carries—is it a 20 millimeter cannon, Ron?

General HITE. Right.

Mr. DECKER. A 20 millimeter nose cannon, which is——

Mr. HUNTER. OK. So you've got eight Hellfires and you've got a cannon.

Mr. DECKER. Eight Hellfires and you've got a cannon. Is there anything else?

General ANDERSON. A 2.75 rocket, sir.

Mr. DECKER. And it's got capability of 2.75 dumb rockets.

Mr. HUNTER. OK. Now, compare that just briefly to Apache and then to Kiowa.

General ANDERSON. Sir, the Apache has very similar capabilities, except that it can carry about two more Hellfire than the Comanche can.

The Kiowa Warrior, in essence, it has the capability and does carry the Hellfire missile—four, I believe, is the number that it carries. It will carry the Stinger air-to-air missile, and that's it. There is no other capability other than that. So it is a very limited capability compared to the flexibility you have with the Comanche.

Mr. HUNTER. So if you're comparing Hellfires, which is a primary weapon, you have the Kiowa Warrior that carries four less and Apache carries two more than the Comanche.

General ANDERSON. Yes, sir, as well as the——

Mr. HUNTER. So you can engage an armed reconnaissance with Kiowa Warrior if you've got four Hellfires.

Mr. DECKER. You can do that, if you want to engage over large ranges and do the armed reconnaissance mission over a large range for a force. You just can't do it with the Kiowa Warrior. It doesn't have the range; it doesn't have the penetration depth, and it clearly doesn't have the survivability. So it's a very good system but it's limited in its total envelope.

Mr. HUNTER. Just one last question and then I'll move on to the gentleman from Missouri.

You mentioned the stealth characteristics. I heretofore hadn't associated real stealth characteristics or capability with helicopters, but you've got a reduced cross section.

You know, one thing that strikes people about helicopters is they don't go too much faster than the first helicopter that was made over half a century ago, just by nature of the physics, and they don't look a lot different.

Now, in real terms, so that this committee can understand it, are there real weapon systems out there that now will not be able to engage Comanche effectively that could engage Apache because of that reduction?

Mr. DECKER. I think the answer to that is yes, but I would like to amplify that a little bit.

The stealth cross section of Comanche won't be as low as some of the fixed-wing kinds of airplanes we see. On the other hand, with the total integrated system, and the day/night capability, Comanche will be able to fly in the weeds, just where we want it, day/night, and in virtually all weather. That's something helicopters of 20 years ago couldn't do.

I have to digress a minute. I spent 5½ years on active duty as an Army helicopter pilot. The things I flew are now in the museum at Fort Rucker. But they are a lot different, sir.

The stealth characteristics of Comanche—and it truly is, as General Anderson described—is down to a much, much smaller cross section of almost any kind of tactical radar you're going to find on the battlefield. You combine that with it being down low, with significant ground clutter, then, unless you stumble across and get very close to and in range of that particular radar, you are very likely to go undetected. So the mission profile and that amount of stealth against most of the radars we know about, and what we see in the future, will give it a substantial degree of survivability in the deep armed reconnaissance missions, if you do your mission planning carefully so that you don't directly fly over the radars, because there is a point in time when any aircraft will be picked up by radar if he gets close enough. But it offers that range equation that substantially reduces the envelope of detection and tracking, and we've got plenty of analyses to show that.

Perhaps the last comment on that, whereas Apache doesn't have it—Now, Apache is not an armed reconnaissance helicopter. We won't send it deep unless we know what's there and have a precise mission that it goes for. But it's not going out unscouted to do the scouting. It would not survive in the deep attack role without reconnaissance and precision targeting. So it is part of the integration maneuver force to kill tanks, and it will go into the deep battle but only when we know its route and know damned well what's there and how to send it. It will not survive because it's a much larger cross section.

Mr. HUNTER. But in Desert Storm the Apache did perform admirably and killed a lot of tanks——

Mr. DECKER. It did well.

Mr. HUNTER [continuing]. And it was scouted, with assets that we presently have.

Mr. DECKER. That's right.

Mr. HUNTER. And there were no Comanches in Desert Storm.

Mr. DECKER. There were no Comanches. But I would hasten to add that in the totality of the integrated battle in Desert Storm, we had pretty much reduced the air defense capabilities of the Iraqis before we sent those helicopters and even some of those fixed-wing planes out. If we can always guarantee that we can destroy the tactical air defense capability, then you've reduced the battlefield equation significantly.

Mr. HUNTER. Thank you.

The gentleman from Missouri.

Mr. SKELTON. Thank you, Mr. Chairman.

As I understand it, regarding the Comanche Program, the first one is scheduled to roll off in 2006, is that correct?

Mr. DECKER. I'm sorry, sir?

Mr. SKELTON. The first one is scheduled to roll off in 2006.

Mr. DECKER. The first production model to be delivered to troops comes off the line in 2006, that's correct. And by the time enough are put together to go to a first unit equipped would be early 2007.

Mr. SKELTON. I'm a little puzzled, and you have to explain this to a country lawyer, why does a helicopter have to be stealthy? I mean, don't we have stealthy airplanes? I know this is a roles and mission fuss, but don't we have stealthy airplanes that can do the same thing already?

Mr. DECKER. I don't think so. We've got numbers of reconnaissance planes, but if you want to do the development of a situation armed reconnaissance for the ground battle commander, both close in and reasonably deep, and not deep deep, I think you need something that's tied to the ground force in an armed reconnaissance role to develop the situation.

Mr. SKELTON. Have you done a study in Desert Storm as to how many times you would have used a stealthy helicopter and not other available assets? Have you done a study in Desert Storm as to whether you would have used a stealthy helicopter, such as the Comanche, rather than other assets? Just answer my question.

Mr. DECKER. That I don't know. I do know what we have done, but I don't know the answer.

Mr. SKELTON. All right. Don't you think it would be a great idea, before you come to us and say "Hey, we need all this stealth technology in a helicopter"—you know, you just had a tremendous example that you can study. There were a lot of helicopters there that did a lot of good work, with good Army pilots. Don't you think that would be a good idea before you came to us and said this is what we need?

Mr. DECKER. Well, you forced me into a yes/no answer.

Mr. SKELTON. Of course, and that's what we're here to do, to find out.

Mr. DECKER. Would you like to know what we have done? It does bear on the question you asked.

Mr. SKELTON. First, there is no study on Desert Storm?

Mr. DECKER. I said not to my knowledge, but that means taking Desert Storm and replaying it precisely as Desert Storm.

Mr. SKELTON. That's correct.

Mr. DECKER. What we have done in the numerous war games and scenarios that General Anderson alluded to was to play a Desert Storm scenario. That's a little different than replicating the precise battle in Desert Storm, the major regional Middle East conflict of what we——

Mr. SKELTON. Was this done by the Army or was it a joint war game?

Mr. DECKER. I think it was done by the Army; is that right, Ed?

General ANDERSON. Yes, sir.

Mr. SKELTON. Wouldn't it be a good idea to involve some of the other services so they can see what assets they (a) might use, or (b), might need? This is a joint environment and I have been pushing jointness with some success through the years.

Mr. DECKER. In the war games that we do play, we play the joint environment. We do play the other forces. I mean, the Army did the study and the results of that have been presented up through the JROC. So we have done many, many war games. That's what those force effectiveness charts were in that class of warfare.

Mr. SKELTON. Do you know of my concern? Do you understand my concern?

Mr. DECKER. Well, maybe I don't. I'm just answering your question, sir. We shouldn't buy weapons systems we don't need, I suppose is your——

Mr. SKELTON. Through the budget briefing documents supplied to the committee staff, Mr. Secretary, the Army Budget Director indicates that training ammunition is funded at 100 percent of requirements, but there is a footnote that this requires a moderate drawdown of war reserve items to support training. I'm concerned about what constitutes moderate drawdown for the ammunition.

You know, I recall very well that General Schwarzkopf did not ask for or receive anything but the most modern, recently manufactured ammunition for his troops, which left a whole supply of unused, no good, I assume, ammunition that wasn't touched.

Well, we know, or at least you folks know, what is needed for possible regional conflicts. What is a moderate drawdown of war reserves? How much do you denigrate the probability of success in two, nearly simultaneous regional major regional conflicts?

General ANDERSON. Sir, I think we have not denigrated the capability at all. The drawdown of war reserves has primarily come about as a result of the reduction in the force size, which then reduces the requirement for the amount of ammunition we had. So what we were able to do then was apply that war reserve ammunition to fulfill some of our training requirements and enable us to use it in the training environment and thereby we did not have to buy the training ammunition.

But the new systems that we are developing and are in the process of developing, we are still in the process of procuring to develop adequate stocks in the war reserve, which in many cases we do not have that yet.

Mr. SKELTON. Can you quantify what you need and do not have yet for the record?

General ANDERSON. Yes, sir, we can.

Mr. DECKER. Yes, sir.

Mr. SKELTON. I would appreciate that.

General ANDERSON. We just completed an ammunition requirements review, a very detailed analysis, to examine exactly that.

Mr. SKELTON. I think both the chairman and I would appreciate that.

General ANDERSON. We will do that, sir.

Mr. HUNTER. Mr. Saxton.

Mr. SAXTON. One quick question on the Comanche. If my recollection is correct, the original plan for development had us fielding helicopters in 2003, is that correct?

Mr. DECKER. Yes, sir. That's the program before the rearrangement of the budget submission for fiscal year 1996, not the budget final but the——

Mr. SAXTON. And the reason for rearranging was budgetary and didn't have anything to do with our ability to develop the technology quicker?

Mr. DECKER. Absolutely not. It was strictly affordability and restructuring a program that we could execute for later delivery.

Mr. SAXTON. Let me just change helicopters for a minute and ask you about an Apache issue.

According to some press reports that I've read recently, you all are planning to "heavy up" the 2d Armored Calvary Regiment, and that you have all of the equipment and weapon systems on hand to do that. But I'm also told that we're short on Apache helicopters. Is that correct?

General ANDERSON. That is correct, yes, sir. We are short Apaches and nine All Source Analysis System [ASAS].

Mr. SAXTON. Is there a plan to procure additional Apaches for this purpose?

General ANDERSON. Sir, we do not have it in the program, but we would certainly be very happy to receive help in that area.

Mr. SAXTON. That might be a priority if the committee were looking to plus-up in some areas?

General ANDERSON. Yes, sir.

Mr. SAXTON. Assuming that the Army needs the Apaches, is that need reflected in the outyears? Is there an anticipation in requesting them in 1998 or 1999 or at any time?

General ANDERSON. Sir, there has not been yet. We are in the process, as you know, of doing the 1998–2003 Program Objective Memorandum (POM), and so we will examine that as an option as well. But right now, the amount of aircraft we have we plan to procure. The Apache does not include that required for the 2d Armored Calvary Regiment [ACR].

Mr. SAXTON. Let me just ask the same question I asked about the helicopter, the Comanche. Is this a budgetary-driven decision rather than a needs-driven decision?

General ANDERSON. With regard to the——

Mr. SAXTON. The Apache.

General ANDERSON. Oh, it is a budgetary decision, yes, sir.

Mr. SAXTON. So, just repeating what you said, if one of us were to ask you if you would think that that would be a good place for us to pursue some additional procurement, you would say yes, that would be good?

General ANDERSON. Yes, sir, we would.

Mr. SAXTON. OK. Thank you very much.

Mr. DECKER. And that is a procurement item, as I commented. Any version of the Apache, including the Longbow, is finished development. Longbow is entering low-rate initial production as we speak. That's a procurement account now with very little Research and Development [R&D] trail.

Mr. HUNTER. Just to flush out the gentleman's last question, we have a wish list, if you will, that you've presented us, the first billion, second billion, third billion. That's the optimistic tier. But do you have Apache in either one of those three categories?

General ANDERSON. We do not at the moment, sir. That's primarily because the second ACR piece is still a developing piece. We have not formally announced our intentions with the second ACR

and where we're going, but I can assure you that we are going to heavy up that force and it will be necessary to equip it with the Apache.

Mr. HUNTER. Thank you.

Mr. Spratt.

Mr. SPRATT. Thank you very much.

I think it's interesting that three members in a row all pursued the question about the Comanche, because I think we can readily grasp the technical overmatch it brings to the battlefield. But the question is, is the low observable airframe hull worth the cost? What is the cost Delta for having a composite, low observable airframe for the Comanche?

Mr. DECKER. In relation to what?

Mr. SPRATT. In relation to a more conventional airframe that would be made out of the same sort of substance or material as the Apache or another attack helicopter. How much are we paying to get low observability?

Mr. DECKER. Once we get to production, the Delta is not huge. You're a little bit in apples and oranges because the Comanche is optimized for armed reconnaissance and the Apache is optimized for attack helicopter operations. It's traditionally not going to perform an armed reconnaissance role. I mean, you'll do anything you need to in a war fight, but you try to optimize your systems.

But if you want to make a comparison with the Apache D model being upgraded with the new weapon system, the Longbow radar will be on a certain number of the planes and the Longbow missile will be the main complement of the others.

I don't recall the exact figures of production—we're doing some streamlining—but I imagine the Comanche hull up in production measured in constant dollars will be maybe 10 or 15 percent more than the Apache.

Don't quote me on that. I'm giving you a gauge. I'm going to take your question for the record, if I may.

Mr. SPRATT. I understand. Is it because of its airframe, because of the low observable airframe?

Mr. DECKER. I think it's a combination of the total system. You see, we're putting a lot in the mission equipment package, along with stealth—the two to go together—to make it capable of performing its armed reconnaissance mission in the total envelope.

Mr. SPRATT. Give me your present program to buy the Comanche. What is the program unit cost?

General HITE. Between $13–$15 million are the fly-away costs, sir.

Mr. SPRATT. Are those in year dollars?

General HITE. Those are 1995 dollars, sir.

Mr. SPRATT. Those are 1995 constant dollars.

General HITE. Yes, sir. And if you run it up in the program unit cost, it would be up to about $25 million, if you throw in inflation and all the R&D to that.

Mr. SPRATT. Let me ask you about the THAAD. Would this panel agree that this is a system that's critically needed for our tactical defense of units in theater?

Mr. DECKER. About THAAD, yes, sir.

Mr. SPRATT. Are you concerned about the schedule slippage?

Mr. DECKER. Concerned, yes, but would I fall on my sword about it, no. I believe in all honesty—this isn't a political statement. I have looked at the data very carefully, and I have worked closely with Dr. Kaminski, and all the service acquisition executives have, and we have all participated with the best teams we have in some of the studies, looking at threat and timing of threat and envelope of threat, and the prioritization drill.

I concur with what's been submitted that says we really have got to get the early threat killers out there as quickly as possible, and that's the Navy lower tier and the Patriot PAC 3 missile. They are clearly high on the bead.

Delaying by about 2 years from the original Theater High Altitude Area Defense [THAAD] schedule the first unit equipped, keeping in mind that there will be 40 UOES missiles, User Operational Evaluation System missiles that could be deployed in an emergency to some location on the original schedule, and the first unit equipped in 2 years, when you look at the total threat envelope, there is some added risk. Admittedly, you always like to have better protection, but I don't believe we have decimated the program, unless something surprising comes out of the woodwork. I believe our technical intelligence is good enough to indicate that it won't. I think that was a prudent decision. The program is executable——

Mr. HUNTER. Would the gentleman yield on that question?

Mr. SPRATT. I will.

Mr. HUNTER. I thank the gentleman for yielding.

You know, we all read the memo from General Luck saying don't delay the THAAD. Was he counting on the first unit equipped? I'm trying to figure out what his—on getting that first unit equipped is what, 40 missiles?

Mr. DECKER. Yeah—I mean, the first unit equipped is the first battery battalion that's Table of Organization and Equipment full up.

Mr. HUNTER. And he was figuring on getting that in Korea, in the Korean theater?

Mr. DECKER. I think he will eventually, when it is equipped. But certainly the User Operational Evaluation System system, if an emergency need arose, could be deployed to Korea, the Middle East, or anyplace. It stays on the original schedule in 1998.

Now, I don't want to speak for General Luck. I haven't talked to him about this, and I'm not quarreling with you. I just hate to represent somebody else when I don't know.

My surmising is that he was thinking in terms of the First Unit Equipped system and maybe didn't realize the UOES system could be available.

Mr. SPRATT. If you had several hundred million dollars more—let's say $400 million—for THAAD, what would you do with it?

Mr. DECKER. Well, I would have to go look at program profiles, but I would certainly try to make a more efficient development and get it into production earlier for efficiency's sake, and then it would certainly fill up the modest risk we have undertaken by the extended schedule. It could be gainfully used.

Mr. SPRATT. General Hite?

General HITE. If you're talking that level of funding per year, sir?

Mr. SPRATT. Yes, sir.

General HITE. We would use that, as Mr. Decker said, to bring the IOC back to the left as close to 2002, 2003, as we could.

Mr. DECKER. And it would do two things for us. It would give us the capability earlier beyond User Operational Evaluating System, and you would have a little more efficient program.

Mr. SPRATT. Now, in all of the art of doing something about theater and other forms of ballistic missile defense, the one system that continually gets slighted is Medium Extended Air Defense, and yet the Army keeps coming back and asking for more, partly, I think, out of a sense of obligation to our North Atlantic Treaty Organization allies, since it is an inoperable system.

I would like to give you an opportunity to make a pitch for the MEADS, in the relative scheme of things, given the fact that money is so tight.

Mr. DECKER. The only system we have at maneuver unit level, division and below, and to some extent, corps and below—I would imagine if Patriot Advanced Capability-3 reaches deployment, it will be somewhere at corps and theater level, that THAADS is clearly a theater system. When you get down to maneuver unit and below, we do not have a marvelous history of success in the Army in fielding our defense system at division and below. We would like to get out of that mode and field something that works.

Right now, the only thing we have at maneuver unit and below to counter this myriad of threats is the Avenger, which is the ground-based Stinger. It's quite a good system, but it won't meet the magnitude of all the threats we are going to face. We believe there is a need to have a system at division level and below that will do that.

Systems like that, no matter what you say and no matter how much we streamline and use commercial standards and all, are still expensive. So the Department, with our hard work and doing most of the nitty-gritty work, has pushed hard to see if we can get a codevelopment going with the other three allies, in hopes that, in the ideal world, if you can achieve the same efficiencies and work shares and those kinds of things that go into it, the cost to the United States would be maybe half to two-thirds what it would be if we tried to solo it. We probably would find the system in the context of this total budget problem we have as being unaffordable, if we couldn't find someone to share it with us. It just doesn't fit.

So we need it, but we may have to go with what we have if we can't pull it off in the MEADS, unless there's an enormous growth in the budget.

Mr. SPRATT. General Hite.

General HITE. I support everything Mr. Decker said. We need the system for a mobile defense of the corps. The only way we can afford it today is with a cooperative program, and in addition to helping with the cost of the system, we can also bring to the table more technology from other countries.

Mr. SPRATT. One last question.

Land mines are a topical issue this year. Given my own feelings that it will be awfully difficult to enforce as ban, even if we impose one, what are we doing to really push the state of the art when it comes to mine detection? I read about the M1 chassis and the blade

on the front of it and things like that, and that sounds like a good system. But it still sounds pretty jerryrigged.

To take a technology leap and use different kinds of sensing systems to find mines, are we putting any money into this?

Mr. DECKER. We are, sir. One of the things that the Bosnia problem with mines has caused is—I think we knew where everything was, but we pulled together in one place the total program that we're working on in various forms of mines.

You touched on the major problem. It's not the destruction but it's the detection and location. The things you saw in the film, the Breacher, the plow, the flailers, they do a pretty good job of neutralizing the mines once you know where you need to neutralize. So the detection operation and location part of the countermine equation is really tough.

We have several projects that have been underway, that we're accelerating through testing and everything, to see if we can get good results, good enough to even do some early fielding in Bosnia.

One example is a multisensor vehicle, which would have a ground-penetrating radar, have an infrared system, and have a magnetic anomaly detector, all on the same vehicle, positioned such that if it works, the vehicle doesn't run over the mine.

Most studies in location and detection show that if you use multiple sensors and you have your processing algorithms correct, the probability of detection goes up significantly.

One caution that we've all felt—and I've spent quite a bit of time talking to our folks that are really good in this area—if you put a mine detector in the hands of troops and you really don't know its probability of detection, and its probability of false alarm, you are probably better off not to have put it in the hands of the troops because the expectations will be up here (indicating). If he thinks it's a 90 percenter and it's only a 60 percenter, and doesn't understand that, you're going to be in a bad position. So we're not dragging our feet, but we're a little cautious to give something untested and unproven that is so critical to a soldier on the ground.

That's what we're doing today in some of those systems. What we do need and what we're trying to get together—and actually, we're working some directly with Dr. White, who has taken an intense interest in this problem—is to put together a little longer term program. We've got some tough technical problems there and I think the wake-up call from Bosnia says we need to make this an R&D program.

Now, there is an Advanced Concept Technology Demonstration, on countermines that we and the Navy and Marines are conducting jointly. Let me take another minute of your time and ask Dr. Milton to comment on that.

Mr. MILTON. The ACTD is an effort to bring a seamless capability in an amphibious context for countermining, with an emphasis on mine field avoidance, which, of course, requires basically overhead or Unmanned Aerial Vehicle types of standoff detection, and then breaching capabilities, when they are necessary as a last resort. This has been our emphasis jointly with the Navy and Marine Corps.

Of course, the Bosnian situation has shown that there are all kinds of dimensions to countermining, including convoy protection

and the kinds of things you get into in a back area environment, so we are going to also be working on forward-looking sensors that are vehicle mounted, again in an attempt to provide a warning in time for a vehicle to stop that is leading a convoy. This involves complex, multisensor technology, ground-penetrating radar and infrared, in an attempt to avoid the false alarms and get high enough detection probabilities to be useful.

Mr. SPRATT. One final question.

You say in your statement that the Army has long been the leader in national missile defense. Are you comfortable with the 3 plus 3 proposal that the administration has submitted, and if we change that, do you have some concern at giving your modest share of the investment accounts now that in the lead service with National Missile Defense, and Theater Missile Defense for that matter, the demands of going faster than 3 plus 3 might encroach on your other needs?

Mr. DECKER. I would kind of like to plead the fifth amendment on that one, but I suppose I ought to give you an answer.

I think the threat to the Nation, vis-a-vis theater threat, has a lot of different dimensions. The mass raid threat still exists, but we don't think it will be executed any time soon. We feel the deterrent of our continuing ICBM's probably is sufficient to deter that. Besides, I don't believe there's a star wars type program in the offing that we could ever afford that can protect us defensively from the mass raid threat. But if we start trying to use that kind of technology to protect against the potential rogue missile threats, or other forms of low-level threats that can wreak havoc in some small location in the Nation, we could spend an awful lot of money and maybe not have an effective system against those kinds of threats.

That worries me a lot. I'm not really an expert in that area, but I have learned a lot about it in the last 2 years. So I would think that the prudent thing to do is to continue our technology efforts in this area, and in terms of it not being a technology hobby shop, I can't think of anything better than the 3 plus 3 kind of strategy, which says we'll be ready to deploy at the end of a 3-year period a limited capability.

I believe we can achieve that technologically. We have a lot of debates in the building about the precise configuration, but if you rise above that, the technology is there to be ready to deploy a limited system against a limited threat from some rogue nation in about 3-years. And if we need to deploy it, we'll have to put the money up to deploy. But I believe that's the right way to view the problem, to get in a position of readiness and then watch carefully with our technical intelligence and not go out and deploy for the sake of deployment. So I'm comfortable with that in that sense. I do not believe we're leaving the Nation naked.

Mr. SPRATT. Thank you very much for your responses.

Mr. HUNTER. I thank the gentleman.

Before I go to Mr. Bartlett, let me just ask you a question, Mr. Secretary. You're aware of the fact that North Korea sells scuds to Libya and Iraq?

Mr. DECKER. I am.

Mr. HUNTER. And you're aware of the fact that they're building the Taepo Dong II missile, which is a fast missile, with fairly extensive range, more extensive than scuds C and B, and that according to the open discussion, that system will be fielded in a couple of years. Are you aware of that?

Mr. DECKER. I guess I haven't followed it in that much detail. I think that's arguable, sir.

Mr. HUNTER. A third question. Would you like to defend our troops in theater against any ballistic missile that countries like Libya and Iraq might throw at them?

Mr. DECKER. Oh, without question.

Mr. HUNTER. Do you know if any of the TMD systems that we're developing now under the administration's plan have the capability of shooting down the Taepo Dong II missile, as understood by our intelligence personnel?

Mr. DECKER. I think it's a matter of the envelope and close-in protection you need. I think the PAC 3, coupled with the Navy lower tier, provides a defensive envelope that probably could do fairly well against those missiles. But then you've got to carefully select. It's the size of the dome of effective protection that's at issue here.

So if you're saying to protect enclaves and critical areas of the military operations, I think they can do reasonably well. The dome of coverage to do well against larger areas, perhaps to protect cities if we're in an allied nation or something——

Mr. HUNTER. Or troops that are spread out.

Mr. DECKER. Or troops that are spread out—will require the larger, upper tier type configuration, either Navy upper tier or THAADS. That's a true statement.

Mr. HUNTER. Thank you, Mr. Secretary.

Mr. Bartlett.

Mr. BARTLETT. Thank you.

I would like to follow up for just a moment on the line of questioning that Mr. Hunter was pursuing. A country that can put satellites in synchronous orbit—and China is now doing that—what kind of a problem is it to adapt that kind of capability to warfighting and what kind of potential threat does that pose for our troops, recognizing that China is now willing to sell their equipment and their technology to apparently anybody who has the money to buy it?

Mr. DECKER. If you have the heavy launch capability to inject a heavy payload in synchronous orbit, you usually have got some multi-stage type capability to get it there. Then I think, technologically, from the physics viewpoint, you've got the capability to fly a missile several thousand miles. So I think you're correct on that.

I think the thing that becomes extremely important is, when those kind of capabilities are exhibited, is that we've got to be very, very sure—and I hope we are; I'm not in that field any more. I used to work in that field a little bit in industry—that our total technical intelligence apparatus, of what's really happening and how they're applying that technology, is up to speed.

The taking of that technology that you've described and reconfiguring it and developing it into a long-range missile system requires a substantial amount of testing. I know we have the technical

means, and have had in the past, and I'm sure we still do, and they need to be deployed, so we monitor very carefully the early stages of what's going on and begin to see where the system is evolving.

We watched the Soviet Union for years through those means and had a pretty good bead on where they were by every single long-range missile system they developed. So I think we will know where they are and are they really beginning to develop a true Intercontinental Ballistic Missile [ICBM], and certainly getting it toward any fielding. I think that's very critical to any decisions we make.

Mr. BARTLETT. I don't deny that we probably have the ability to track how far along they are in this development.

Mr. DECKER. It would take several years to bring that to fruition, even with the capability they have in boosters to put satellites up.

Mr. BARTLETT. If you look at where they are in their capability, and note how long it would take for them to get from where they are to warfighting capability with this, and if you look at where we are in our defense against this kind of a threat and how long it would take us to field a system that would protect us, which of these would proceed along their development course faster?

Is it not true that almost certainly they could develop their capability into a warfighting capability before we could go from where we are now to a really believable defensive capability? And why would we want to wait until we saw them proceeding further along this development line before we became more enthusiastic about development? Because I'm really distressed that we have turned back the clock on the Ballistic Missile Defense [BMD] and even broader missile defense than that.

Mr. DECKER. I don't think I have studied that carefully enough to give you a reasoned answer. I hate to invent things in real time. The intelligence data I've seen and the briefings I have received—that's my sole source of information—would indicate that it's not likely you're going to see that kind of capability to be deployed and ready to shoot 5,000 or 6,000 miles against the United States or any other nation for at least 6 or 7 years downstream. That's what the intelligence data I've seen tells me.

If you have a different view of that—I'm not defending it. That's just what has been presented to me.

Mr. BARTLETT. Much of the intelligence I've seen looks at the inherent nature of these countries to develop, inside the country, this capability. I don't think anybody denies that that's a fairly long time frame. But, you know, Mu'ammar Qadhafi doesn't need to develop inside his country this capability. He certainly can buy it, and it is for sale. I think we're underestimating the potential threat from these rogue nations if we look only at their internal capability for developing these weapons and not at their ability to simply raise the money to buy it.

Mr. DECKER. No, I understand what you're saying. I was kind of referring to the bigger picture and saying, in terms of a deployable system that could be staged and ready to light the fire, whoever develops it.

I think the various systems the North Koreans are working on aren't going to be ready any sooner than that.

Mr. BARTLETT. Could you for the record get us an estimate of how long it would likely take the Chinese to go from where they are in heavy launch vehicles to a warfighting capability, and how long it would take us to go from where we are to a defense against this? Could you provide that for the record?

Mr. DECKER. I will do that, but I think it will be—the data I can get together, I don't have—The Army is generally not working hard in the technical intelligence field to collect it. I will provide the data I have been asked to look at, and fast. I don't want to represent my results of any work the Army has done, because we're really not in the long-range missile technical intelligence business. But I will provide and will annotate the source of the information.

Mr. BARTLETT. We would appreciate that.

Thank you, Mr. Chairman.

Mr. HUNTER. Thank you, Mr. Bartlett.

The Chairman is recognized for questioning.

Mr. SPENCE. Thank you. I was going to pass and let others have an opportunity, but I couldn't resist the temptation right here.

I want to first of all thank you for your testimony and the help you all have given us to provide you with what you need.

Relative to what Mr. Bartlett was just talking about, I was especially interested in what you put together in your book, in the modernization plan, about missile defense, and the context in which you put this whole thing. I'm referring to G–2, where you give the ICBM threat to this country, and you list China, Russia, the Ukraine, Kazakhstan, Belarus, as having the capability right now, and you add Iran, Iraq, Libya, North Korea, Syria as ones who have the potential. Mr. Bartlett was making the point that you have Japan, China, India, and other European countries who are developing space launch capabilities and that's directly transferrable to intercontinental ballistic missile development.

Then you say the intelligence community consensus is that in the next 8 or 10 years, the countries listed in figure G–2, those I just named, will be able to procure ICBM's capable of attacking the continental United States.

I think that's a very good point you make and it's useful to have this information, so I want to compliment you on that.

Mr. Decker, one thing. Did I hear you right when you gave the relative strength of our Army compared to others in the world as number 8, you said?

Mr. DECKER. Just in terms of size of the Army measured in body count, Army only. The data I have seen says we're approximately the eighth largest army in terms of number of bodies in the service. It might be ninth. We don't have perfect data on some of the other countries.

North Korea has more soldiers than we do by a long shot, so I think we're number 8 in terms of body count.

Mr. SPENCE. In 1939 we were 17th in the world as a military power. I would just remind everybody of that.

Thank you.

Mr. DECKER. I did add, however, that I truly believe at this point we're the 1st best, and we have to stay that way.

Mr. HUNTER. I thank the Chairman.

The gentleman from Texas, Mr. Edwards.

Mr. EDWARDS. Thank you, Mr. Chairman.

Mr. Decker, General Hite, thank you all for your testimony and for your leadership.

Secretary Decker, if knowledge of the battlefield is so crucial—and it is, and always has been—and based on the testimony today that the earliest time the Comanche might come off the production line, if it does ever at all, would be the year 2006.

Why is the administration considering a rescission bill that would take all the $115 million that this Congress appropriated for this fiscal year to spend on the Kiowa Warrior? Does that make sense?

Mr. DECKER. I guess I don't know. We in the Army feel like we have some holes. Even with the limitations I've described of Kiowa Warrior, it's all we've got that has some optimization, and within its limitations, it's a fine machine. But it's all we have to do this reconnaissance mission, even with its current envelope, and we have some severe holes in a couple of our critical National Guard units that we're going to rely on, approved in the force structure, and we felt very strongly that we really needed that system. As far as I know, we still feel that strongly.

Mr. EDWARDS. I appreciate your honesty, and I think we all recognize we work within fiscal constraints and tough decisions have to be made. But at least I want to be clear that if the decision is made to suggest we ought to rescind those dollars for the Kiowa Warrior, that decision is more-dollar-based than needs-based.

Mr. DECKER. Unquestionably.

Mr. EDWARDS. So you need the Kiowa Warriors.

Mr. DECKER. We absolutely do. We won't need them once we get Comanche in the fleet, and it gets up to speed and we get the units equipped. Even if we move the envelope into 2003, which is a possibility, we still have got to get to 2003 and we still need these Guard units equipped.

Mr. EDWARDS. Thank you for that answer.

I would also ask you about the Multiple Launch Rocket System [MLRS]. It's my understanding that the MLRS will be the Army's choice of artillery until the year 2025, more or less. It is also——

Mr. DECKER. Sir, it will be the Army's choice of rocket artillery.

Mr. EDWARDS. Rocket artillery.

Mr. DECKER. I don't mean to play semantics, but——

Mr. EDWARDS. Absolutely. Thank you for pointing that out.

It is my understanding that the National Guard has 75 percent of the responsibility for that rocket artillery, and yet is only equipped at 50 percent with the MLRS. If that's correct, and considering other needs for the MLRS, if you were to have additional funding for that program, how would you spend those dollars?

General HITE. We would spend the additional dollars to upgrade several batteries of MLRS and give those to the National Guard.

Mr. EDWARDS. Thank you.

One last question, time permitting. Following up on Chairman Spence's question, the fact that we're the eighth largest army in the world now, Desert Storm certainly proved that, as proud as we are of the Air Force, there was still a lot of Saddam Hussein tanks operating once all of the bombing quit and we had to send in the Army. If you're going to be the eighth largest, you had better be

well equipped and training. I'm convinced we have the finest people in the world, and I'm convinced today we have the finest capabilities in the world. But I am concerned about how we maintain that level with R&D and procurement levels, where the Army is today.

Tell me, repeat for me, if you would, what the total R&D and the total procurement budget is for the Army for this fiscal year.

General HITE. For the fiscal year 1997 submission or the fiscal year 1996 actual?

Mr. EDWARDS. How about the fiscal year 1996 actual.

Mr. DECKER. The fiscal year 1996 actual, which means the budget and eventual authorization bill that was passed, the total Research, Development, and Acquisition [RDA] accounts was approximately $12.3 billion. That's what you sent back and was put into law.

Mr. EDWARDS. That's R&D and procurement?

Mr. DECKER. That's the total ball of wax.

Mr. EDWARDS. Everything.

The percentage of the total defense R&D and procurement budget, do you know what percent that is, approximately?

Mr. DECKER. About 14 percent, roughly. In other words, on apples and apples, if you took science and technology, which is a piece of research and development, you took RDT&E of developing actual systems, and then you took procurement and added all that together on an apples and apples basis for all the services, plus the defense agencies, we're about 14 percent.

Mr. EDWARDS. A last quick question.

That 14 percent as a percent of R&D and procurement for the entire Department of Defense, has that percentage been dropping or is that consistent with previous years and decades?

Mr. DECKER. It has dropped.

General HITE. It's dropping, and we project it to drop a little bit more over the next 10 years.

Mr. EDWARDS. OK. Thank you very much for your responses. Mr. Chairman, thank you.

Mr. HUNTER. I thank the gentleman.

The gentleman from Virginia, Mr. Bateman.

Mr. BATEMAN. Thank you, Mr. Chairman, and I thank Secretary Decker and General Hite and the other witnesses for being with us.

The Crusader Advanced Field Artillery System, a system that I know absolutely nothing about, I'm intrigued that I read that the liquid projectile propellant program is essentially being abandoned. Is that information correct?

Mr. DECKER. The final signoff of that decision is pending, but I'll tell you where we are and what I've recommended.

The requirement for a new artillery system for the Army, in terms of the force and the kind of battles we see, is critical. The Paladin is an excellent system, but it is deficient for the kind of major regional conflicts that we're basing our force strategy on in mobility, especially in mobility, both instantaneous mobility, where you can move from one firing position to the next and be shooting like that, and in cross-country speed mobility to keep up with the force. This is relevant to user requirements that have been validated with our JROC process and everything, so these are bona fide requirements.

It is also deficient in range and in rate of fire. So that's the fundamental requirement need. There is a range of these key performance parameters that exists, with a minimum acceptable parameter in each case. There's about seven or eight of those.

Liquid propellant technology had moved along well in the past and offered a lot of promise, and so, when the approval was given to go to full-scale development of the demonstration validation system, which is the predecessor to designing for production, liquid propellant was selected as the propellant of choice because it looked like we had solved all the glitches.

At the insistence of Congress, which turned out to be wise insistence—and I don't mean that to be placating; we didn't fight that at all—because there were risks associated and some unknowns with it in the technological sense, we pursued in parallel a backup program with an advanced solid charged system that has now become known as the modular artillery charged system. That uses a vastly improved solid propellant, much different than the powder bag artillery of today.

That has been pursued extensively and expensively up through the full development of the cannon and the propellant. As we got into the program about a year—and this is not at all condemning the performance of the program team or the contractors. We have an excellent team. But problems began to surface that had not been fully understood in the totality of stability of liquid propellant and what it meant to the total system. I won't take you through the litany of those. They have been well documented.

So about 3 months ago, as part of normal program risk reviews, we undertook a special assessment and asked the Army Science Board to look at the technology, and we asked the Army Materiel Systems Analysis Agency—we did not ask the developer, including our own people at Piccatinny to do this assessment but we wanted it independent—to put together a total risk-cost assessment. We looked at that hard, we went through two or three iterations of it.

In this resource environment we're in today, it is my considered opinion that we will not come anywhere near making the schedule milestones with liquid propellant to get it to the true man-rated, solve-all-the-problems capability, and that the modular automated charge system meets all the critical parameters of the new artillery system. The risk analysis says that the risk of that is very low at this point. It's a more stable kind of a product.

So I have recommended as a program that we do what we had planned to do with the risk mitigation, if we couldn't get the liquid propellant solved in a design sense, to go ahead and switch to the solid propellant about a year earlier than we would have expected, because I believe we're at the point where we won't be there in a year anyway. So that's the recommendation I submitted and it's pending final approval as we speak.

Mr. BATEMAN. Does that imply that the liquid projectile propellant program would be totally canceled?

Mr. DECKER. No; it doesn't. It needs to move back into the science and tech base, and we'll have to find the money to do that. "But it is not ready to put in the hands of troops on the schedule," we're saying, and I firmly believe that.

Mr. BATEMAN. Mr. Chairman, I would like to inquire into one other area, very quickly, if I may.

Mr. Secretary, if this is not within your venue, then whisper in the ear of whoever it is, or whisper to me who it is. In hearings last week, I developed a concern that we are deficient in supplies of vaccines for our troops, for infectious disease and possible bacteriological warfare exposure. Also, very significantly, I was told by military medical personnel that we did not have the kind of research that is critical to knowing in what combinations vaccines can be administered and whether or not perhaps by administering several vaccines in combinations we may be doing something that may be deleterious to the health of the troops.

Would your portfolio include research in that area?

Mr. DECKER. Let me answer your question two ways. In terms of technical expertise, personally, that's way out of my line. In terms of execution responsibility, the joint bio-defense program is a tri-service, joint program of which the Army is the executive agent. So we have a program manager who is about to make general, an Army chemical colonel about to make general, and we execute that program on behalf of DOD. So it's in my management responsibility domain.

I will answer a question that I infer from yours, and then I'll get back to the R&D piece. In terms of the total dimensions of executing the joint bio-defense program and the vaccines accorded with it, we have a fairly firm handle on some of the major kinds of biothreats we might expect to face, of which anthrax is certainly a big one. I don't believe there is any mystery about how we might proceed to develop and stockpile those vaccines.

The issue on that is more of a policy issue than an acquisition issue, and that is still being studied within the building. Policy issues related to what's our policy, if we believe we're going to be in a theater where bio-weapons might be used, with regard to having enough on hand, to help the indigenous population, how about allied forces.

Then there is the policy of well, do we want to pre-vaccinate our own troops, or maybe wait until the last minute. Those policy issues are above my pay grade. We're waiting for answers on those to know precisely how to execute the program.

Now, on the technological question you asked, maybe we're not doing enough research to look at the combinations. I don't have a good answer to that. That may be an accurate statement. I don't know who to refer to here.

Mr. BATEMAN. If I may, if you would, whoever the persons are who are competent in this area, get back to me on what research is ongoing and what would be needed in order to elevate that research.

Mr. DECKER. Fair enough.

Mr. BATEMAN. I think that's a critical area that needs to be examined. If my data is flawed and it isn't a problem, I'll be very happy to be reassured that it isn't. If it is a problem, I will be one of those on this committee who will be insisting that you take some money that we will try and find and fix the problem.

Mr. DECKER. That would be a fair request and we will certainly give you that information, sir.

Mr. HUNTER. I thank the gentleman from Virginia.

Miss DeLauro, and then the gentleman from Texas will be next.

Ms. DELAURO. Thank you very much, Mr. Chairman, and thank you for holding this hearing. I want to thank our guests this morning for their testimony. It is much appreciated.

I wanted to pursue the issues on the Comanche, if I can, a little bit further. I have heard just a few minutes ago you, Secretary Decker, saying that we need the Kiowa Warrior until we get the Comanche. In earlier commentary—and I wasn't here, but I have notes, so if I'm inaccurate, you can let me know—but in response to a question, you talked about the Comanche gives us a substantial degree of survivability and the Apache doesn't have it.

If we are looking at the future being the technology, the capacity that the Comanche has, one question is, why, in your view, are we not moving? If the Kiowa Warrior is less than what we now need in terms of our capability—and I would like you to comment on what this can do for our capability and the survivability of our troops—if the Apache doesn't give us that kind of advantage, why, in your view, are we not moving to the Comanche more quickly than I believe this chart demonstrates, where you say the program is executable but warfight is at risk.

You know, what is your sense of the lack of movement to what can provide us with the best capability?

Mr. DECKER. I think there's a couple of dimensions to your question I would like to answer. One I'll infer, and the other I'll give you the direct answer.

I know I may sound like a broken record, but Apache is a heavy attack helicopter. It is not, in any shape, form, or fashion—except that you'll do anything you have to on a battlefield—but it is not at all envisioned to play a major armed reconnaissance role. So its survivability has to be taken in the context of the integrated warfight as it fights with the other forces. It is rare that you would send it out without fully knowing where it's going and having fully reconned and know its flight routes on a deep attack mission, whereas you will send an armed reconnaissance helicopter out to develop that very situation. So an Apache is not an armed reconnaissance helicopter. It's a heavy attack helicopter.

Now, the Kiowa is the only armed reconnaissance helicopter we have. It's a very good machine. In fact, it's a real marvel to take basically a commercially-based machine and make it do what it's doing. But it will not meet the flight envelope of the future. So the comparison, I think, really ought to be looking at threats and saying where do we need Comanche, and when, related to what we can now do in armed aerial reconnaissance, which is a limited amount. We need Apache under any circumstances for the foreseeable future, with the Longbow upgrade.

Now, your question about why then, if we think Comanche is critical to filling this expanded envelope of armed aerial reconnaissance, why then is Comanche moved to the right? It's totally an envelope and total budget equation of affordability issues.

We have some big holes today in the procurements of critical weapon systems today, and I could go through a litany of those. I have stated many times, as the Chairman pointed out earlier—and he quoted me accurately—the procurement accounts are hurting

bad. So we have just had to fill some of those procurement accounts with the dollars we have. So it has been an affordability issue. It's not a lack of priority of Comanche but it's things we need today that are ready to be put in the force.

Ms. DELAURO. My follow on question is, in terms of threat, in terms of current threat, by accelerating the Comanche, what would it do for our capability in meeting the current threat?

Mr. DECKER. Well, I'll give you my own opinion—and I think, if you talk to most of the warfighters, they would agree. Imagine we had Comanche right today, as it has been specified to perform, it's been tested, and we had some we could deploy. We would have them in Bosnia in a heartbeat. It is ideal for that kind of reconnaissance and that kind of terrain. It can fly into those kinds of crummy conditions. We would be using it in conjunction with UAV's.

If we went to Desert Storm or a similar kind of war, the Comanche would be right up there carrying on this armed aerial reconnaissance, develop the situation function for the maneuver commanders, and probably even for the corps commanders. But we do what we can do with the Kiowa under the envelope that we can, and it does a reasonably good job. But it won't do this total expanded envelope.

Ms. DELAURO. In terms of survivability of troops, which is always a major concern when we put our troops into a situation like Bosnia—which has been greatly debated and discussed in this committee and in the Congress—give me a ballpark figure in terms of survivability of troops with the Comanche helicopter.

Mr. DECKER. Perhaps the best way to look at that is through one of the charts that General Anderson used, where we gave a quick Comanche overview——

Ms. DELAURO. I'm sorry I wasn't here at the outset.

Mr. DECKER. That's OK. We'll give you the charts.

One of the charts showed a very simple effectiveness bar, that showed the current helicopter fleet as an integral total of the battle which doesn't have Comanche in it, but that's the Kiowa and the Apache and the other things fighting the wars. You normalize their effectiveness in terms of force exchange ratio, the upper right hand of that chart. We used 1.0 as the effectiveness of the current fleet. Then we put the upgraded fleet in, which is Comanche and the Apache Longbow D model and everything, and you see an improvement of about a factor of 4.

That is generally measured not in who wins or loses the battle. We usually win. It's the force exchange ratio. Those are very controversial analyses, but that's the best data I can give you that we have.

Mr. HUNTER. Would the gentlelady yield?

Ms. DELAURO. Yes, I would be happy to yield.

Mr. HUNTER. I thank the gentlelady for yielding.

You just spoke of Bosnia and you said you would have it over there in a heartbeat.

Mr. DECKER. For reconnaissance purposes, for sure.

Mr. HUNTER. Well, I believe it is open knowledge that we've had some UAV's operating in Bosnia, unmanned vehicles——

Mr. DECKER. You bet.

Mr. HUNTER. We've had several incidents of them going down, being at least on one occasion shot down. Are you saying you would have put a manned Comanche in place of those vehicles in the roles that they were flying?

Mr. DECKER. No. I said I think in conjunction with the UAV's. That's what I said.

Mr. HUNTER. I guess my question to you is, if you had the opportunity to have a UAV, since you're not in a shooting war in Bosnia, that you don't want to develop a situation and end up putting ordnance on target——

Mr. DECKER. That's right. That's not our mission.

Mr. HUNTER [continuing]. Why have a manned vehicle, with all the implications of a shootdown, when you can do the reconnaissance job with unmanned vehicles? I say that because when those UAV's went down, they hardly made a ripple in the American press, precisely for the reason that no people were involved. If those had been American helicopters with crews, there would have been enormous implications.

General ANDERSON. Sir, I'm going to give you my opinion, if I may, on this.

I think the Comanche and the capabilities that it provides in terms of survivability compared to the UAV—and I believe you're referring to the Predator, the aircraft that we lost—they operate in almost two different dimensions of airspace The Predator is very, very high and, consequently, he is very, very vulnerable to a multitude of surface-to-air missile systems that are in some cases, or were at that time, over there.

The advantage that the Comanche provides to you is that he is able to operate very, very low, in addition to being stealthy and getting his radar cross-sections. So if the information was so important to the commander that he needed to have that information in the way of reconnaissance and that kind of thing, he has to make a choice as to which system is it that he wants to employ to get that information for him, and he does that on the basis of what he knows to be the threat and what he knows to be the capabilities of the systems he has to employ.

So, although we generally don't want to put anybody in harm's way, that's certainly not the method by which we operate——

Mr. HUNTER. And that's the beauty of a UAV.

General ANDERSON. True.

Mr. HUNTER. If you lose it, you put another paper airplane together and send it up there.

General ANDERSON. That's true. Yes, sir.

Mr. HUNTER. I thank the gentlelady.

Ms. DELAURO. I have a question here I want to pursue. Are we not being penny wise and pound foolish about moving—in terms of the resources you're talking about, dollar amounts, in terms of moving more quickly to developing and getting the Comanche aboard? We have added $100 million in the last budget, and there's the potential to do that as well this time around.

But in the concern that this is what we need to do and where we need to go, the survivability and capability, again, in your view, are we being penny wise and pound foolish at the moment with our direction on where we're putting our dollars?

Mr. DECKER. Yeah. If you isolate the Comanche program by itself, it could be more efficient in a number of ways, if we could move it forward. There's no question about it. In the context of the total budget equation and the fiscal constraints we have, we have tried to make the best balance of some needs we have today that are just bleeding us in the procurement accounts.

We can show you the data. I'm not being pejorative, ma'am. I don,t intend it that way. But we tried to balance it as best we can. When the size of the pie is that big, you try to optimize in it and balance your near-term need and your long-term needs. The pie needs to be bigger.

Ms. DELAURO. Mr. Chairman, one more question.

Mr. Secretary, with regard to extending the life of the CH–47D helicopter, is the Army considering an engine upgrade as part of any service life extension program?

Mr. DECKER. I don't know the specifics of the planning on that program, but I'll turn to my experts. They do.

General ANDERSON. Yes, ma'am, we are. We have an improved cargo helicopter program which does include an engine upgrade. As we are going through the 1998 Program Objective Memorandum bill, that is a program that we expect to support.

Ms. DELAURO. OK. Thank you.

Thank you very much, Mr. Chairman.

Mr. HUNTER. I thank the gentlelady.

The gentleman from Texas.

Mr. THORNBERRY. Thank you, Mr. Chairman.

Secretary Decker, what would be your top three holes that you need to fill in the fiscal year 1997 procurement budget? I haven't seen the Chairman's wish list, but you were mentioning some big problems that you have. What are the top ones?

Mr. DECKER. I think, in terms of broad areas, I like to group things like that together. As you heard earlier, we put the soldier system pretty high. It was there last year and we felt like it was funded reasonably well, so we didn't make it one of the bullets in answer to a similar question.

But as we have looked at the spectrum of missions and talked a lot with the new Chief, I think it's clear that the whole arena of Force XXI modernization, including the soldier system's piece, is critical.

Mr. THORNBERRY. Is that what we saw in here earlier today?

Mr. DECKER. Part of it was the system that we hope to field, and that will be a continual upgrade as it goes. But we hope to start fielding that in fiscal year 1999. So the ensemble of digitization and Force XXI modernization efforts to inject technologies, there is a series of those projects that we're undertaking that we think we need to keep high on the bullet. We would certainly like to put some more money into those things.

We have a collection of some critical combat service and combat support programs. Among them are the trucks——

Mr. THORNBERRY. Still?

Mr. DECKER. Yeah. We're getting better at helping ourselves. We have reprioritized. We're still not well there yet.

You've heard ammunition. We're going to provide a special report to the chairman, at his request, that we've just completed. So we

still have a mixed problem of ammunition and coming on line with the new preferred ammunition.

There is probably a series of 10 or 12 things in the combat service, combat support area—wheeled vehicles, ammunition, generators, the Achilles' heel. We've had trouble developing—and I think we're finally there—quiet generators. We need to get those funded.

As you heard General Anderson comment, and Congresswoman DeLauro's question, we are really going to try to fix the longer range service life extension program for the CH–47. There are some upgrades needed for that program now, until we get the Service Life Extension Program running. So aviation in general.

You folks were really good to us last year, but we certainly would like to accelerate Comanche and would certainly like to make sure we're fixed in the Blackhawk fleet, and if we could accelerate the Apache buys—we're in good shape on the program now; we're just going into low rate initial production. But if we could accelerate those buys, we could see some real program efficiencies.

And then perhaps last, in terms of the broader priorities, are a series of programs that are well structured and we're executing according to our schedule. We think they're reasonably stable if we don't lose budget, but we could create some significant efficiencies if we could buy them out sooner. That would be an efficiency thing. That's things like the M1–A2 and the Bradley upgrade. There's about seven or eight real items in there that are in procurement, that if we could accelerate the production rates, we could get a hell of a deal from the contractor. It's that simple.

So that's the kind of way I view it, and we can get you some specifics on those, but I hope that gives you the generic——

Mr. THORNBERRY. That's exactly what I was looking for. But you have provided the committee the specifics on the seven or eight items that you mentioned at the end, where we could get significant savings if we used the more efficient rates of production at this point.

Mr. DECKER. Yes.

By the way, in the 1997 budget submission, when you finally have it in your hands and wade through it—I don't know how you guys stay awake reading all that stuff—you will see an example of what we already did in our own budget submission. That is to buy out the Single Channel Ground and Airborne Radio System [SINGAS] radios early. A huge savings in the outyears, both the fact that you don't have to buy them in the outyears and the cost break. You will see we have done that ourselves there, because that was one of the top priority command and control items we had.

There's a series of those kind of examples that are in that category, and I gave you a couple.

Mr. THORNBERRY. I appreciate that.

I listened very carefully to your answers to Mr. Edwards' question about the multiple launch rocket system and trying to equip our Guard units. I see in your prepared statement there is a couple of paragraphs on some updates and modifications, that we would like to move toward that, and I presume that that may be an area where we can assist as well.

Let me ask you one last thing. My understanding is that a couple of weeks ago GAO sent a letter over on the Javelin missile, ques-

tioning about whether it is wise to buy a bunch of them if they're going to be redesigned somewhat.

Is that a fair summary of what their concern was, and can you tell me what the answer to their concern is?

General HITE. Sir, I can address that.

We have an enhanced producibility program which we put into place for the Javelin to reduce the cost of the Javelin and take advantage of some of the commercial technologies that are available now to put into the Javelin. For the command launch unit—that's the unit that stays behind after you fire the missile. It has the forward-looking infrared system in it. We are changing some of the electronics in it, changing the cards. We're going from four cards to two cards, commercial cards, low risk. It will be thoroughly tested before it is fielded, and we are not concerned about that at this time.

We think we will have less risk and it will be a better system, a higher reliable system, than the system we're currently doing in low rate production.

Mr. THORNBERRY. In part because we're going to a commercial technology basically.

General HITE. Exactly.

Mr. THORNBERRY. OK. Great.

Mr. DECKER. I would like to make a comment on that, because it's a pitch and an example of acquisition reform and action.

We undertook this study and called it the Javelin Cost Reduction, where the performance envelope didn't change. It's still got to fly this far and have this kind of lethality. Since the contracting team was already in place, and we're going to get the contract for the first low-rate initial production for sure, we didn't have any of the usual competitive barriers that we can't talk to you guys. So we used an integrated product team approach, where our tactical missile team and those guys and our best technical experts got together and said "What can we do, now that this thing is designed and proven, to make the cost more efficient and still have the missile do its thing?"

They did a remarkable study that would never have happened, went out into the commercial world, found commercial parts that had form, fit and function, tested them to make sure we just didn't buy a bunch of garbage, and found, as we've known all along, that most of them were better than the mil spec parts.

It's that kind of change we made. We will buy the first few the old way. We need to get the system going. But then we take the moneys we have put in and the cost reduction, get it plowed back in, and we're going to see an ability to buy the system out. If we change the quantities at all about 2 years early, and a combination of the lowered costs of the parts and labor in buying the system out early, it's going to save $1 billion. We have put that into the POM that way.

Mr. THORNBERRY. Mr. Secretary, it may make too much sense to spread around Washington very far, but I wish you the best of luck. It seems like it's a smart way to do business.

Mr. DECKER. I'm really proud of that team and the two contractors. I think we're going to get somewhere.

Mr. THORNBERRY. Thank you, sir.

Thank you, Mr. Chairman.

Mr. HUNTER. I thank the gentleman.

Mr. Everett, and then the other gentleman from Texas.

Mr. EVERETT. It's good to see you today and we appreciate your testimony.

Secretary Decker, you can come down to Fort Rucker again any time and we'll let you strap on some of those old machines again. I just live 8 miles from the gate there.

Just briefly, we have had nothing in the plus-up that we talked about last week concerning Army aviation, and, of course, earlier today you said you wanted to plug in some Apaches there. Can I assume that you also, if you had $1 to $3 billion, would plug in some more money for the Comanche?

Mr. DECKER. Yes, sir.

Mr. EVERETT. Good.

If you took all the sophisticated changes that we have in the Comanche, all that you could, and you plugged them into the Warrior, you still wouldn't have the Comanche, would you?

Mr. DECKER. I'm sorry, sir? Say again.

Mr. EVERETT. If you took all the software enhancement and everything that we have in the Comanche and you put that into the Warrior, you still would not have the Comanche, would you?

Mr. DECKER. That is correct. We would not. The total mission envelope would still come up short of what we think the needs are.

Mr. EVERETT. Pretty short.

Mr. DECKER. Quite short.

I want to hasten to add—these things get out of context and I've got to do this. The answer is yes, we would come up substantially short. We can go into the specifics. These are not statements of criticism on our current helicopters. The teams have done a remarkable job to milk every item of performance they can out of them. But they're just running out of gas, figuratively speaking. So that's not critical of the current system.

It's just like the car you bought ten years ago was probably the best you could find, but you wouldn't buy it again today. It's that kind of a situation. You now have better things. So you would be short, yes, sir.

Mr. EVERETT. And for a plus-up of 10 or 15 percent, we could, in your estimation, could have the Comanche rather than the current fleet? Did I misunderstand somebody——

Mr. DECKER. Well, what we were asked, just to be a little bit nitty-gritty, was the original program before the budget adjustments in our 1996 submission, we would have had first unit equipped in 2003. Now we're at 2006, 2007, as you heard. You know, is there a problem in still getting back to the original 2003 date, perhaps even a little sooner, and the answer is no, the program is in good shape. We would just need to accelerate production and put some more money into the program. So that's the answer. The answer is yes, we could get back to the 2003, 2002 timeframe. It's an affordability problem, not a technological, "oh, my God, we've got a problem" problem.

Mr. EVERETT. Long term, I notice from your chart there's a $19 billion O&S savings, using the Comanche over the current fleet.

Mr. DECKER. Using a 20-year base, normally what we use.

Mr. EVERETT. Would that not offset the cost of going to the Comanche program, the 10 or 15 percent that we're talking about?

Mr. DECKER. It offsets the cost from 2003 forward.

Mr. EVERETT. From 2003 forward. I would like to get that in.

One last thing on the Comanche. You know, if you're out there with this low profile—and our airmen doing half of their flying over Bosnia—I think the low profile that folks would see on that radar screen as opposed to a 20-foot profile, I think that might be significant, wouldn't it?

Mr. DECKER. I'm convinced it would be. Having been an aviator in the ancient days of helicopters, I would sure as hell like to have a Comanche if I had to do that mission.

Mr. EVERETT. Let me change subjects a little bit.

In your written testimony you——

Mr. DECKER. Can I make one other comment?

Mr. EVERETT. Sure, go ahead.

Mr. DECKER. Low observability is really three dimensions. It's electronic—and that's the radar cross section—sound, and visual. You might say an extension of visual is the infrared region, because that's something you can't see with your eyes but a sensor can see.

Comanche has been clearly demonstrated to have a significantly lower radar cross section. You might wonder why it has five rotor blades. You don't need five rotor blades and you can do just as well, in terms of aerodynamic performance, with four. It costs you a little more to put a fifth one on.

But the sound level of the rotor blades comes down enormously by distributing the load across five rotor blades, and the acoustical signature of that helicopter is amazing. You can listen to it and compare it, but we made the measurement.

It has had very careful design in the way the engine exhaust and the other sources of heat are on the machine. So it has a substantially lower infrared profile than current machines.

Now, eyeballs are eyeballs. You fly across somebody with a machine gun right there, he can see you. That's a camouflage kind of technique. But in those three dimensions of infrared, audio and radar cross section, that's a significantly stealthier machine than anything we have.

Mr. EVERETT. Let me switch a little bit.

In your written testimony you talk about the new multiyear contract for the Blackhawk to build the L model, and you touched on the Army's need to replace it, its aging medivac fleet, with the older A model, UH–60's.

Could you discuss this in a little greater detail and include the possibility of Q models for medivac?

General HITE. We are planning to go to a multiyear contract, five year multiyear, on Blackhawk, beginning later this year, probably the December timeframe. That is not the Q model. We have a requirement for 385 Q models, in that neighborhood, 380 to 385. We do not have those funded. It costs about $2 million per bird to upgrade a Blackhawk to that model. As we're building the POM, we're looking at doing that, but have not made a decision as to whether we can afford it or not.

General ANDERSON. Along those lines, sir, there is an effort underway that is funded to develop the Q package, a 60 Quebec package, so that we can understand and certify it and make sure we know what it is that we would ultimately be able to put on as we work it in the POM process. I believe that's funded in the National Guard DPP——

General HITE. It is.

Mr. EVERETT. Secretary Decker, I understand the Army is looking at going to a 4 year, multiyear contract on the Hellfire II missile. If funding was available in fiscal year 1997, wouldn't it make sense, from an efficiency standpoint, to start the multiyear contract in fiscal year 1997?

Mr. DECKER. Ron?

General HITE. The answer is yes.

Mr. EVERETT. Thank you.

Thank you, Mr. Chairman.

Mr. HUNTER. I think the gentleman did a great job of rehabilitating the Comanche on redirect examination, along with the gentlelady from Connecticut.

I now recognize the other gentleman from Texas.

Incidentally, gentlemen, we often see members of the administration who are leaving and they tell us it's their last hearing. The gentleman who is asking these next questions, Mr. Geren, is one of the most valued members of this committee and a real friend, a great person with a great intellect. This is the last hearing of this type that he is going to be attending because he's retiring, and they're already fighting like cats and dogs over his seat. But it's going to be awfully tough to replace the gentleman from Texas, Mr. Geren.

Mr. GEREN. Mr. Chairman, thank you for those kind words. I appreciate that very much, and I particularly appreciate that I happen to have some of my home town folks here that I would like to recognize before I ask my questions.

We have students from the North Side High School in Fort Worth, as well as the Magnet School for the Medical Professions. They are back here attending a hearing as part of their educational program. I want to welcome them, and under the circumstances, Mr. Chairman, I particularly appreciate those kind words. Thank you.

Mr. HUNTER. They are very welcome, and you are represented by the very best in Mr. Geren.

The gentleman is recognized.

Mr. GEREN. Thank you very much.

As my colleague, Mr. Edwards, has, I know that Mr. Thornberry asked about the MLRS program. I don't want to repeat the question but I share their concern that perhaps we aren't making the investment in MLRS that we need to this year, and I know you all have walked through perhaps some of the deficiencies in that area, but let me just echo their concern about that issue.

Mr. Secretary, could you give the committee a description of the Army's OH–58D safety enhancement program and what costs are associated with that and what plans you all have for funding those costs?

Mr. DECKER. The program has been looked at substantially. We haven't felt at this point that there is a safety issue related to life and limb. But it's a program that needs to be fixed, and it has to do with the rotor blade group, the fact that the machine is loaded it its hilt. So we think we know the design solution.

We're looking at the sources of funding for that. We've reviewed it with Mr. Longuemare, who is Mr. Kaminski's principle deputy, and we got a notice now from him the other day that sort of said "you've got to get this thing fixed, so come up with a project to fix it." So we're at work to find a way to do that, to at least get the nonrecurring engineering done so we know what the design fix is. So I think we'll find a way to fix that ourselves. We're going to have to take it out of hide, I suppose. But we do need to fix it.

Mr. GEREN. General Hite, did you want to add to that?

General HITE. Sir, I can give you the numbers on what Mr. Decker was talking about.

To do the crash worthiness seats, like we're doing in most modern helicopters today, it would take a program of about $46 million for the 382 aircraft. To put the Field Artillery Digital Automatic Computer [FADAC] controller on the engine, it would take $142 million for those 382 aircraft, over a certain number of years.

In 1997, if we were to start it in 1997, we would need about $40 million to start the program in 1997, in that ballpark, which we do not have budgeted.

Mr. GEREN. Was the reason—a similar question to that asked by some of my colleagues—was the reason it wasn't budgeted driven by affordability issues rather than a question of it not being a priority for you?

General HITE. I think two reasons, sir. First, affordability issues, but the driver was we didn't determine what the fixer should be in time to really give it good, hard consideration for the 1997 budget. As Mr. Decker said, it's something that we are going to have to do. We just have not yet programmed the dollars for that.

Mr. GEREN. Thank you, General.

Mr. Secretary, further on the OH–58D, the original Army validated requirement was 500 OH–58D's, and we're still a hundred short of meeting that requirement. As you know, the Congress each year has put some money for OH–58D's into the budget.

Do you see as the Army is still a hundred aircraft short for meeting the requirement in that area?

General ANDERSON. Yes, sir, we are. We see a requirement of 507 aircraft and we currently have, I believe, 365. So we are still short.

Mr. GEREN. If the committee deemed it wise to add additional funds for the Kiowa Warrior program again this year, could you tell the committee where those Kiowa Warriors would go? Would they go to the active duty Army or Army National Guard? Do you have an idea now where they would be most needed?

General ANDERSON. Sir, what we would do is we would put them into the National Guard. That's what the current plan would be, the majority of them. There may be some that need to go into the active component, but the vast majority would go to the National Guard.

Mr. GEREN. Thank you very much, General. Mr. Secretary and panel, thank you all for your excellent testimony.

Thank you, Mr. Chairman.

Mr. HUNTER. I thank the distinguished gentleman from Texas.

The gentleman from Mississippi has arrived. Mr. Taylor, any questions?

Mr. TAYLOR. No.

Mr. HUNTER. OK. Mr. Longley from Maine has also arrived. Mr. Longley.

Mr. LONGLEY. Mr. Chairman, thank you. I'm going to welcome the opportunity to review the material, and I'm sure we'll have a chance to talk later. Thank you.

Mr. HUNTER. Excellent.

We have a number of questions that I need to ask for the record, Mr. Secretary. Before we do that, my friend, Mr. Bartlett, had a question that he wanted to ask with respect to your report.

Mr. Everett, did you have another question you wanted to ask, also? I think you did a good job on the Comanche.

Mr. EVERETT. I wanted to make it straight, that for the same money we could have a superior aircraft from 2003 forward.

Mr. Chairman, I just want to recognize the former ranking member of this committee, a former colleague of ours, and the gentleman I replaced in this slot, Bill Dickinson just entered and I wanted the committee to recognize him there.

Mr. HUNTER. I thank the gentleman. We see the former ranking member of the committee and the guy who used to let John Kasich and I take the keys to the car and go down to the Dairy Queen every now and now. [Laughter.]

Mr. Dickinson, thank you for being with us today. We appreciate your being here.

Mr. Bartlett, do you have a followup on the report you have in front of you?

Mr. BARTLETT. Yes, sir.

Mr. Secretary, on this report, the modernization plan, on page G–3 there is a paragraph that begins just three lines down on that page.

Mr. DECKER. All right, sir.

Mr. BARTLETT. Would you read just the first sentence of that and tell me what you think that says and if you really believe that.

Mr. DECKER. "At the present time, no single country has the capability to destroy the United States by launching a major strategic attack with nuclear-tipped Intercontinental Ballistic Missiles [ICBM's]."

Mr. BARTLETT. Do you really believe that?

Mr. DECKER. Well, I guess that refers to every country in the world. The next statement says, "However, as illustrated in figure G–2, China, Russia, Ukraine, Kazakhstan, and Belarus have any numbers of ICBM's which may be launched against the United States accidentally or without authorization."

I think the context of the statement probably is as important as the fact. As written, it says "destroy the United States". I guess what that really means is the bulk of the old Soviet Union arsenal—not the bulk, but a big percentage of it—is distributed among these independent countries, so they're not likely to launch a single mass raid.

Mr. EVERETT. That's a different question, whether they're likely to launch or not. You know, when you have the second, third and fourth largest nuclear powers in the world represented by Russia, Ukraine, and Kazakhstan, any one of those three alone—your little chart down at the bottom, the lower right, on page G–2 indicates that those three countries have many nuclear-tipped missiles. Each one of them, it's my understanding, have the capability, depending on what you mean by destroy, to effectively destroy our country as we know it.

I would suggest there is probably some way to state what the author wanted to say there better. If what they meant to say was that it is perceived unlikely from intelligence reports that these countries would launch attacks that would destroy us, then you could argue whether that's believable or not. But to make the flat-out statement that there is no country that has the capability to destroy the United States I think is not believable.

Mr. DECKER. So noted, sir.

Mr. HUNTER. The gentleman makes a good point. Russia has thousands of nuclear warheads.

Just for the record, we're asking my favorite question that we ask everybody from General Shalikashvili right on down, and that is, to your information, do we have the ability to stop, physically intercept, a single nuclear warhead entering the United States, directed at the United States, in a missile trajectory?

Mr. DECKER. Are you asking me if we do?

Mr. HUNTER. Yes.

Mr. DECKER. You mean in place today?

Mr. HUNTER. Yes.

Mr. DECKER. I don't think we do.

Mr. HUNTER. The reason I ask that question is I took part in a focus group recently, in which we asked constituents of mine that question. Most people—and they've asked them in the Chairman's district, also, and other places around the United States—most Americans think we have the ability to physically intercept incoming ballistic missiles. It's incredible that we've talked about the issue a lot, but we seem to have created more confusion than clarity on this issue, that particular provision.

Mr. DECKER. I'll accept your word for that, sir. I mean, I'm not quarreling with you. I don't know what to say.

Mr. HUNTER. Mr. Secretary, I was absolutely amazed. You know, we talk about deterrence and many means of defense, et cetera, and when you watch these focus groups, they say yeah, we could scramble the jets, or didn't Ronald Reagan take care of that with Star Wars, or can't we shoot Cruise missiles at them. It becomes very clear that we've done a poor job of informing the electorate that we don't have the ability to stop a single one of those 6,000 or so warheads remaining in Russia.

Statements like the one that leads off that paragraph, that says no nation has the capability to destroy the country, I think it further bolsters that misperception. If you and I went outside on the street now and took a walk and asked the first 20 people we saw if we could shoot down incoming ballistic missiles, I'll bet you 9 out of 10 of them would say sure we can.

Thank you for answering that difficult question, Mr. Secretary.

Mr. Secretary, we have a number of round-up questions.

Mr. TAYLOR. Mr. Chairman?

Mr. HUNTER. Yes, Mr. Taylor.

Mr. TAYLOR. At some point I would like to reclaim my time here, if that is available.

Mr. HUNTER. Sure. Why don't you go ahead right now.

The gentleman from Mississippi is recognized.

Mr. TAYLOR. Thank you, sir.

Secretary Decker, the Army Materiel Command, does that fall under your responsibility?

Mr. DECKER. Not directly. The budget and management responsibility for all the Science and Technology [S&T] and acquisition programs do, and a number of those are executed in Army Materiel Command [AMC] under my oversight. But in a hiring and firing sense, the Commanding General of AMC reports to the Chief.

Mr. TAYLOR. OK. Well, I'm not looking to get anyone fired, but I am trying to——

Mr. DECKER. I'm just saying there's a subtle difference. I have a lot of influence in what they do.

Mr. TAYLOR. Great. I would encourage you to try to save the Nation about $15 million a year by closing the Mississippi Army Ammunition Plant. I know that's kind of unusual for someone to say about a facility in their district, but I come from a place where whole cities are run for a whole year for about $4–$5 million, and the folks back home have a little trouble fathoming why it takes $12–$15 million a year to baby sit empty buildings.

It is my understanding this was a plant built in the seventies and eighties to build the 155-millimeter round. It had some limited production and it was shut down. It is my understanding that, as you're looking for the new advanced 155-millimeter round, you're not even considering to build it there.

That tells me you're not going to use it, and if you're not going to use it, I think you should give it to the private sector or make it available to National Aeronautics and Space Administration [NASA]. It's in the middle of the Stennis Space Center, or transfer it to the Navy Oceanographic Command, where they have two growing commands down there, do something worthwhile with it, rather than let that approximately $300 million worth of lathes, milling machines, forges, presses, just sit there and get old and obsolete, because they could be doing something else.

I think your organization does a magnificent job in a huge variety of ways. I think this is one blemish on the overall appearance that I think needs to be addressed, and I wanted to bring this to your attention. I hope it will be addressed.

Mr. DECKER. It will be. I appreciate your inputs.

Mr. TAYLOR. Thank you, sir.

Mr. DECKER. We have, in general, in my opinion—and we're doing some fairly detailed studies right now because I would like to have some facts—in many areas, far more capacity in a number of installations than even our fondest dreams of budgets are going to create the demand for. It is very nice to find someone who recognizes that. So let's do something useful with the property. I appreciate your input, sir.

Mr. TAYLOR. If I may close, I would invite you to come to work with me, for the simple reason that, again, in southern Mississippi, that's considered to be a heck of a lot of money, to pay people to watch an empty building, and it is a $600 million investment on the part of the taxpayers. There is bound to be a better use for it.

But the Army has kind of taken the attitude of well, I don't exactly want it, but I won't let it go, either. That's not fair to the taxpayers. You either want it and you use it, or let someone who can use it have it.

Mr. DECKER. Yes, sir.

Mr. TAYLOR. Thank you, sir.

Mr. DECKER. Thank you for your comments.

Mr. HUNTER. Has the gentleman concluded his questions?

Mr. TAYLOR. Yes, sir.

Mr. HUNTER. I thank the gentleman from Mississippi.

Now, Mr. Secretary, we've got a few wrap-up questions here. Let me start off with the billion dollars or so that the Army lost due to revised budget assumptions. In theory, those were all reflected, and that was in fiscal year 1996, that that was all a function of inflation adjustments.

How does the reduction in that inflation account impact on real changes? Did you have any real impacts as a result of that billion dollars being sucked out?

Mr. DECKER. Yes, sir. General Hite has the numbers, but the broad answer to your question is that, in several areas, there was some real impact.

Mr. HUNTER. Could you give me an example of some of the areas?

General HITE. Yes, sir. Those programs that were baseline, utilizing an inflation rate different than what was used by OMB, in terms of making the reduction that you talked about, will suffer—are being impacted by the change in that inflation rate because we baseline the program at a different rate than what Office of Management Budget [OMB] was using to reduce from.

An example is the Longbow Apache program. That program was baseline at a rate different, so therefore, when you take that reduction in the program, you are taking a higher reduction than is anticipated from just a change in inflation, because you use a different baseline. We have several examples of that.

OSD is aware of those. They have asked us the impact of the programs and we're providing those to the Office of the Secretary of Defense [OSD].

Mr. HUNTER. OK. Could you provide those for the committee in short order?

General HITE. Yes, sir.

Mr. HUNTER. How much, Mr. Secretary, of the DOD-wide $26 billion fiscal year 1997 to fiscal year 2001 procurement decrement is coming from the Army?

Mr. DECKER. I'm not quite sure what you're——

Mr. HUNTER. Okay. We've got a $26 billion reduction that was made recently by the administration, fiscal year 1997 to fiscal year 2001, in procurement, in all DOD-wide procurement. How much of that is your piece of the pie?

Mr. DECKER. We may have to get that for the record because I'm not registering with what you say. The 1997 budget guidance came out and we followed that and packaged things up. Then there were some adjustments through the drill, and at some point in the process—for 1997 I'm speaking now, not 1996, because there were inflation adjustments that came in at the 11th hour that relative to the then baseline we were trying to budget against.

Mr. HUNTER. I'm talking about the 1997 to 2001——

Mr. DECKER. I understand you are, and so am I.

General ANDERSON. Are you talking the inflation indices or adjustments——

General HITE. Or the plus-ups. We also receive plus-ups.

Mr. DECKER. That's what I'm saying. We need to——

Mr. HUNTER. The differences in the procurement accounts, if you add up the procurement accounts, the President's budget in 1996 and 1997, and you take it out through 2001, and you take the differences, they add up to $26 billion DOD-wide.

Let me have one of the staff people take our memo down to you. You take a look at it and we'll go on to some other questions. Maybe you can reflect on that and tell us how much of that comes from Army accounts.

Let me go on, Mr. Secretary, because I have a few other wrap-up questions that I've got to ask while your people are working this thing over. We'll let one of them answer that when they get a chance to look at the memo there.

First, we talked about the rescission list, Mr. Secretary. In fact, I think one member mentioned that the Kiowa Warrior is on the rescission list. So you have seen a rescission list.

Mr. DECKER. I haven't seen a final rescission list. I saw a list that I——

Mr. HUNTER. What did you see?

Mr. DECKER. I saw a list that the Army turned in, approved by the Army Resource Board, chaired by the Secretary and the Chief, in which I participate.

Mr. HUNTER. Have we got a copy of that? Can we get your rescission list, whatever documents you've got?

Mr. DECKER. Sir, if you don't mind, I would really like to refer to the Secretary on that, my boss.

Mr. HUNTER. OK.

Mr. DECKER. That's what we scrubbed down within OSD, and then the Defense Resource Board meets, of which the Secretary is a member, and the Chief, and they do the final scrubs on that. I'm not copping out on you, but he is my boss and I would hate to give——

Mr. HUNTER. OK. What was the purpose of this rescission list that you saw?

Mr. DECKER. The latest rescission list that I'm aware of is one that we worked on inside the—I'm not sure OSD had been required, as I understand it—there's nothing in writing on this—to come up with a rescission of about $800 million, and so they gave a guideline to the services on how much they should work on. So we scrubbed it down——

Mr. HUNTER. Is that for the Bosnia operation?

Mr. DECKER. No, that's for a different purpose. That came after the Bosnia reprogramming exercise.

Mr. HUNTER. Is it for Jordan, for the moneys we're sending to Jordan? What was the rescission list for?

Mr. DECKER. I don't know.

Mr. HUNTER. What is your understanding?

Mr. DECKER. I don't know. I mean, I'm not copping out on you. I don't know.

Mr. HUNTER. The next time somebody asks me for $800 million, I'm going to ask them what it's for.

Mr. DECKER. I didn't ask you for $800 million. I don't think it was for Bosnia, and I don't think it was for any of the other military operations, as far as I know. I think it had other elements of the budget in mind. But that's all hearsay.

Mr. HUNTER. Does the Army intend to comply, or substantially comply, with the fiscal year 1996 DOD authorization act's direction to implement a multiyear procurement of small arms in fiscal year 1997?

Mr. DECKER. The answer is yes.

Mr. HUNTER. A couple of months ago we wrote the Army concerning the funds authorized in fiscal year 1996 for a product improvement to the Hydra 70 rocket. I indicated that I expected the Army to have these funds managed by the program executive officer for tactical missiles at the Army's Missile Command.

To date, we haven't received a response. Can you tell me what's happened?

Mr. DECKER. I'm sorry, sir. They slipped me a note on your former question and I can amplify, but——

Mr. HUNTER. I got you. General Hite wants to expound on the former question, too.

Two months ago we wrote the Army concerning the funds authorized in fiscal year 1996 for product improvement to the Hydra 70 rocket, or Hydra 70. At that time we wanted the Army to have these funds managed by the program executive officer for tactical missiles at the Army's Missile Command, and to date we haven't gotten any response.

What's happened?

Mr. DECKER. We haven't put our act together to give you the response yet. I think early next week a briefing is due in to me on that subject. With the planning, we're just running a little late.

We're not going to cop out on you. We'll give you a response. We may not agree with what you've asked us to do. I don't know the answer to that yet. But we are putting a plan together to let you know what we recommend on Hydro 70 and respond to your request. We're just running a little late and I apologize for that.

Mr. HUNTER. You put together a "wish list" that we've got a copy of here, and you have also responded to members in the give and take of the committee dimension here. You may need to go back and maybe make a scrub and make those responses consistent with, or maybe prioritized, with your written—I know it's difficult to respond when members say, is this an important thing, and you say yeah, it's important. It's tough to give that a particular priority.

But with respect to your add list, the ones that you gave us, are those categories prioritized?

Mr. DECKER. I don't think they are fully prioritized yet.

Mr. HUNTER. I know they're prioritized generally within one billion, two billion, three billion. OK. And I'm particularly concerned about the ammunition accounts. As you know, we're working that and we want to get a response back pretty quick.

You know, we talked about mine detection a little earlier, and for practical purposes, the upshot of our January hearing on mine detection was that the average squad or platoon basically is armed with coin detectors, what I call militarized coin detectors.

One complaint that we heard from inventors, from innovators, from industry, was that it was tough to get new ideas into the pipeline and get them evaluated. You have taken some steps, I understand, to open the door to people that figure they've got ways to detect mines. I know Mr. Talent had a gentleman who had a way of detecting mines by sensing disturbed earth from aerial platforms, and it looks, at least to Mr. Talent, to be very promising.

What have you done to open the door to innovation with respect to mine detection? Somebody said you had an 800 number now at the Pentagon. [Laughter.]

Mr. DECKER. My first awareness of pulling stuff together, as I said earlier, in one place, so we can get a handle on that, as far as the specifics of people bringing in new ideas and how they get evaluated, I'm not sure of the mechanics of that. Let me turn that over to Dr. Milton.

Mr. HUNTER. OK. Dr. Milton finally gets his chance.

Mr. MILTON. We have established, of course, a countermine task force to try to provide more priority and attention to this area, and we have published in the Commerce Business Daily a broad area announcement, which basically encourages people with good ideas to bring them forward for evaluation.

Now, we are doing on a steady basis evaluation on a "onesy-twosey" basis of technologies, so people will bring those to the night vision laboratory. So this effort to try to understand what the state-of-the-art is and what the ideas are that are out there ongoing.

The issue for Bosnia, of course, has been that you need a very mature idea to consider actually giving it to the troops.

Mr. HUNTER. Let me just break in for one second, because there are two conflicting theories here. One is that you need mature systems, and from this committee, I've seen weapon systems that were started before I got here that aren't fielded yet, and probably when I retire won't be fielded because we want them to be extremely mature.

On the other hand, you see the best of American innovators, like the people at the skunk works who needed a deep bunker buster, who went from requirement to fielding in, I believe, 12 days. They just went out and did what they had to do.

The idea that we're a little worried about getting stuff in the field because it's not mature and we would rather have a soldier with nothing than to have him with something that's 60 percent effective, let me just say as an old infantryman that I would rather have a 60 percent chance at detecting a mine than no chance at all.

So the quick fielding of technology, if we get some good technology, is going to require some people with judgment in positions where they can make determinations and decisions to go forward and put these things in the field. If we don't, we're going to have a doggoned mess, where we've got a ton of stuff in the pipeline that's going to be looked at and evaluated over a period of years, and in the near term, if we put you folks in this same position 3 years from now and we're still in a Bosnia-type situation, and we ask what do we have for that company commander or that platoon leader, it's going to be the good old coin detectors.

So please tell me there's a difference between wanted mature technology and having a bureaucracy that moves extremely slowly.

Mr. MILTON. If I could make one additional comment, we have brought to our forces in Bosnia some of the concepts for their consideration. They have faxed us back some of what they're interested in. It does include some more advanced, multisensor detection equipment. So I think that interaction about what it is that they will accept in this timeframe is proceeding, and we will get some new technology to them.

General HITE. Mr. Chairman, in response to your quick acquisition, we do have a program—Dr. Milton alluded to it—with the technology sale and the Army Materiel Command headquarters. This week we have 14 contractors. We have taken 600–700 great ideas, ideas that we received from all over the world.

I was in Scotland a couple or three weeks ago at one of our factories, and this individual, as I was leaving, came up and handed me an envelope and it had a technology for detecting mines in it, which I brought back to the sale and AMC headquarters.

Today, as we speak, we have 14 contractors with technologies being demonstrated down at Fort Belvoir. This week, on the 22d, we're going to pick the most promising of those technologies. By the 22d of this month, if we have some technologies, we are going to issue letter contracts, speed those up, and get them to Bosnia in the August/September time frame, if we can. It's going to take some additional money on our part. We have to find that in 1996. But we're committed to doing that.

The issue on the technology is you have several different sensors. The issue is, once you get past two sensors, trying to fuse the data from more than two sensors, it becomes a tremendous technical challenge, which drives your reliability and false alarm rates up. That's the challenge that those folks at Belvoir are having today. But we are committed to doing that.

Mr. HUNTER. Well, that sounds promising, and you can get the subcommittees, both for R&D and Procurement, will be providing whatever money is necessary to accelerate the fielding of new and more effective technology in mine detection. So we want to see this thing move, and it sounds like you're moving out——

Mr. DECKER. We really are. Gen. Roy Beauchamp is overseeing this mine thing. I spent some time with him the other day. But the goal of this drill is to get enough testing done—and I've got to say, you're absolutely right. We spend 15 years developing a system and then it's probably not what we need anyway. We have got to change that. That's what acquisition is all about.

In mine detection, I would like to say something I said earlier—and this is not bureaucracy. For a soldier, or a Corps of Engineers guy who is skilled, or anybody, if you give him a tool, and he's going to personally go out and search for mines, he is in harm's way right there. If he thinks that's a high probability instrument and it is not proven to be so, his expectations are high, you're going to have higher casualties.

We are committed in this drill that Ron just described to get enough testing done in rapid order, different conditions, different mines, buried at different levels, cold, wet, all that, in about three months, to say we understand the characterization and get one of these classes of systems over there by—the target date is by August. It may slip to September. So we really are moving out on that.

I completely share your frustration, but you don't want to put something in, in that environment, with a soldier running around looking for mines, that we don't fully understand its performance.

General ANDERSON. Sir, to illustrate further the importance that the Department of Defense has placed on this, on Thursday the Secretary of Defense himself, Mr. Perry, will go out to Fort Belvoir and he will be briefed on both the technologies that we're looking at as well as what our needs are. He has committed that he will ensure that the funding is provided, that is necessary to get those in the hands of the soldiers. So I think you have created an awareness, there's no question about it, and we are responding I think properly.

Mr. HUNTER. OK. Thank you, General.

We have been informed that to procure and support the current version of the Battlefield Combat Identification System, the price tag is $30,000 per installation, including the field support. The Army believes this to be too expensive and is not going to buy the equipment for its vehicles.

The Army is, however, paying $30,000 for a single tank-killing round called Search and Destroy Armor Munition [SADARM] and $75,000 for a single tank-killing round called Javelin.

If we're ready to spend $75,000 or $30,000 to kill an enemy tank, why isn't it worth spending $30,000 to help ensure the survivability of a $6.5 million U.S. tank and four American soldiers, our soldiers being our most important asset?

Mr. DECKER. Let me give you a broad answer to that, and then I would like Dr. Milton to comment on some specifics.

That is a good question. In that context, if we were completely squared away on the utility of the system and everything, I think it obviously says "hey, fratricide is a problem, ground-to-ground fire causes fratricide, we see it in all our exercises, and you sure as heck would want to spend that much."

It starts to become a problem in the affordability, in that you don't just equip your shooters with these. Part of fratricide is a shooter shooting a nonshooter. So the vast number of vehicles that need these is far greater than the number of shooters, whereas you only put the missiles on the shooters. So I'm not copping out on you. There is a big tip of the iceberg there.

Now, to get at that, two things are happening. The Defense Department, in all honesty, is very worried about this problem, in all

facets. There is an Advanced Concepts Technology Demonstration [ACTD] coming up where we're going to look at the utility of this in the total situation. I would like Dr. Milton to comment on that in a moment.

In addition, we have found the funding and we are committed with a four-party test, a cooperative inner-operability test of four different concepts of ground-to-ground combat Identification [ID]. The four parties are the United States, Britain, France and Germany. That's going to happen in early 1997. It's going to be billed as a shoot off in some respects, but we're going to find out a lot about which of these systems seem to operate the best in some kind of test environment. Then I think we're going to bite the bullet and decide what to do.

That's the macro picture. Let me ask Dr. Milton to give you a few more comments.

Mr. MILTON. The ACTD is designed to investigate the combat ID problem in the joint context, for both ground-to-ground and air-to-ground, and try to search the most affordable integrated solution. This would include questions and answers [Q&A] of various types, including Battlefield Combat Identification Systems [BCIS], and situation awareness. So what we're hoping from that experiment is that we will have a combination of tactics and technologies that makes the most sense to go forward.

The fact that it is an ACTD gives an idea of the type of priority that we are putting on trying to get a full solution.

Mr. HUNTER. Another question. On January 24, the Army announced the cancellation of the Armored Gun System [AGS] Program, the Armored Gun System program, which was one of your top priorities a year ago.

What is your rationale for cancelling Armored Gun System [AGS] and how do you intend to fill the requirement for direct fire support to early-entry forces?

General ANDERSON. Sir, the cancellation of the Armored Gun System was, pure and simple, an affordability issue. The program itself was operating properly. However, we found that we needed to have additional dollars to fulfill some other critical modernization needs, as well as some personnel needs and construction needs in the Army. We did not want to make that decision, but we felt that we had to do it and that was the only option we had.

In order to fulfill the void that we have now left as a result of the Armored Gun System [AGS], we are looking at a couple of different options. One is we feel the introduction of the Javelin into the light force gives them substantially improved antiarmor capability, as well as bunker-busting capability, that they do not have and will have shortly. We intend to expedite the fielding of it to them.

We also expect that we will have the ability to task organize from other sources, such as heavy forces, depending upon what the threat is that they will be confronted with, using the strategic lift capabilities that are being developed and will be in place. So if it's to take a Bradley company from the 24th Mech and airlift it in, then that may be the way we have to do it.

In addition to that, we are using some of the spaces that were in the armor battalion in the 82d, and we are going to use that in

conjunction with an Advanced Concepts Technology Demonstration [ACTD], the rapid force projection initiative, and look at the EFOG–M as a potential EFOG company and, depending upon the outcome of that particular ACTD, we will either keep that company in the 82d to give it some additional precision capability as well. So we are very concerned about it. It was not a light decision, sir, but we felt we had to do it.

Mr. HUNTER. Thank you, gentlemen.

Mr. Everett, Mr. Taylor, do you have any final questions you would like to ask? OK. Let me check with our staff here for a minute to see if there's anything we haven't covered for the record.

Mr. DECKER. Could I add one thing?

Mr. HUNTER. Yes, sir.

Mr. DECKER. I wasn't evading you when you said what was this rescission all about. I wasn't really clear, and your point is well taken. It was actually across DOD. It was more like a billion dollars being looked at, but part of that came from DOD agencies. Each service had been asked to look at a $250 million rescission list.

I understand, verbally, that that was part of an overall budget drill for domestic programs that was not driven inside OSD, so we were just responding to that.

Mr. HUNTER. OK.

Mr. DECKER. So when we were asked by our leaders at OSD, we scrubbed the list and turned it in. I haven't seen anything from it since then.

Mr. HUNTER. Thank you.

Mr. DECKER. But you're telling me that you have information that the Kiowa Warrior was on there, and I don't like to dodge it, but we didn't put it on there.

Mr. HUNTER. Yeah, the $26 billion reduction.

General Hite.

General HITE. I'm still not sure I understand your question. Let me give it back to you as I understand it.

In 1996, we had a 1996 budget with outyear projections by the administration and the Department of Defense. When the 1997 budget was submitted, those outyear projections changed to reduce the procurement amount by *x* number of dollars.

How much of that was in the Army? I have that data. I do not have it with me. I will be happy to provide it for the record, if that is your question.

Mr. DECKER. Is that the reference point you're coming from?

Mr. HUNTER. Yeah.

Mr. DECKER. The 1996 Program Objective Memorandum [POM] string?

Mr. HUNTER. Yeah, right.

General HITE. We can answer that for the record.

Mr. HUNTER. OK, if you can supply that for the record, that's fine.

Just one final question on procurement reform and the streamlining of systems.

Are you familiar with the success story that we had in the Air Force with C–17, under acquisition, with Secretary Darleen Druyun? That was one of the centerpieces of Mr. Perry's testimony,

to the effect that we cut a lot of money out of the C–17 program by putting together a team, under Darleen Druyun.

We had a chance to meet with her and what she did was quite remarkable. They went in and basically took phone books of mil specs and requirements down to just a few pieces of paper. She put together a team of about 70 people that she handpicked, and included the contractors on the team, and they scrubbed the entire program. They had it streamlined, they made it more simple, they made it easier to execute. In many cases they got the Government of the hair of the contractor and let the contractor in many cases offer suggestions for saving money. Their success was remarkable.

The natural question that I think comes to every member of this committee is, if you can do that in the Air Force with—whether you call that a value engineering team or a red team or whatever—could we take that and apply it to some of the programs in the Army?

I know John Douglas, acquisition secretary for the Navy, has already met with Mrs. Druyun and wants to duplicate that effort in some Navy programs. But I wondered how the Army feels about that.

Mr. DECKER. We are routinely doing that. They took it from us. [Laughter.]

I can prove that. And I can give you hard core examples. We don't have anything as big as a C–17, so we just do our little nickel and dime savings.

Mr. HUNTER. Well, what do you do?

Mr. DECKER. I'll give you an example.

We have a program called SMART–T, the Secure Mobile Antijam Reliable Tactical Terminal. It's the ground forces' terminal for Military Strategic Tactical Relay [MILSTAR]. It started in 1991, under the old mil spec, "can't carry the RFQ around, it's too heavy" structure. General Guenther came on board later. It was moving along.

The original POM estimates in SMART–T to buy out the numbers we need was something like $781 million. They did a midcourse correction when General Guenther was a two star up at Communications and Electronics Command [CECOM], and got General Gust and his team, who do the command and control Program Executive Officers [PEO] work, and they did a restructuring of the program at that time, revised their estimates, and put it in the POM. Accordingly, still to buy the same number, the price came down to a little over $500 million.

Then, when we got acquisition reform going big time, with lectures and every other thing, and me beating on people, they really streamlined the program. It went down to commercial standards and decided hey, we don't need all these things. It had no mil specs in there. The only mil standards in there are those that relate to communications and inneroperability. I mean, if you don't have the right data format, you can't communicate with the other end. But in terms of mil specs, scrubbed it down, brought two contractors on board, had a shoot off, got a fixed price bid, good quality data, to buy out the fleet, and the final bill is $281 million. And that's a hard contract for delivery, and we got a 4-year bumper to bumper warranty.

We have examples like that, sir. I came here to do acquisition reform. The system has been so broken for so long——

Mr. HUNTER. Let me ask you this question.

What Miss Druyun did, I think they put that team together for the C–17. But after it worked on C–17, they said why not value engineer or scrub all the systems in a similar way, so they institutionalized the team and they go through a lot of systems.

Are you doing that with a number of your systems?

Mr. DECKER. Well, yeah. Before she——

Mr. HUNTER. Are you duplicating SMART–T, the process, in other areas?

Mr. DECKER. I've got numerous examples. One of the things that was set up and started before my time—and I really pushed it to be energized—goes back to the beginning. I have a fundamental theory, and it works, and the Army started thinking about this. I don't want to take full credit. It says, when you put out a request for proposal, you don't have to pay for anything you don't ask for.

I don't know if you've ever seen Request for Proposals——

Mr. HUNTER. Yes.

Mr. DECKER. They are awful. So for our major programs—and now we're extending it down into some of the lesser ones—we put together a hard scrub team and required all programs above an estimated value of $20 million to be scrubbed by the central team. The results were remarkable. We have seen 600 page RFQs come down to 40 pages.

Now we're starting to see the bid prices come in. We've been doing that for about 2½ years, and it works with all these programs.

I would like to get together with you some time and take you through a systematic view of what we've been doing and where our savings are.

Mr. HUNTER. I would like to do that. The next time I see Darleen Druyun, I'm going to force her to give you guys credit in her speeches and presentations. I think she needs to mention your name three times.

Mr. DECKER. As Dr. Perry said at Congressman Montgomery's honorary breakfast this morning——

Mr. HUNTER. I heard it.

Mr. DECKER [continuing]. "If you don't care who gets the credit, you can get a lot done in this town."

Mr. HUNTER. Thank you very much, Mr. Secretary.

Yes, General.

General HITE. Sir, if I may add something on to the acquisition reform discussion, this committee has been extremely helpful over the past 2 or 3 years in streamlining acquisition, and we certainly appreciate what you're doing. It is taking hold. It is taking effect across our programs, although we perhaps don't advertise it as much as we should.

One area that we need some additional help in is an area that is very frustrating to us, to see new ideas come in from industry, new ideas come in from the battle labs and our training and doctrine command, technology—the Sergeant that I had in, Sergeant Moubray, the Land Warrior system, we're pushing technology to get advanced technology into this modular system much quicker.

But the road block you run into is, when you have that good idea, it takes you 2 to 3 years, once you say yep, that's a good idea, I want to buy it, to get the money programmed, budgeted, and then start the execution.

If there is some way the Congress can give the Chief of Staff of the Army a funding initiative line, $75–$100 million, whatever, in that range, and when a new idea comes up like that, that we need to immediately act and send it to Bosnia, procure it and send it to Bosnia, or to get it jump-started so we can save a tremendous amount of dollars down the road, it would be a very efficient way of doing business. And it's not a lot of money, considering the totality of the budget.

Mr. HUNTER. And in some cases it would be seed money to get the program started.

General HITE. Exactly, seed money to jump start good ideas.

Mr. HUNTER. OK.

Mr. DECKER. Fully accounted for, but not precommitted to some specific area except by category.

Mr. HUNTER. So we can move out briskly on an innovation.

Mr. DECKER. You bet.

Mr. HUNTER. One last question on this procurement reform. If we implement all of the initiatives that we passed last year, and if there's a cultural change in the idea that you don't need 30 phone books worth of an RFP when only a few pages will do, and we have approximately 300,000 people in DOD—that's two U.S. Marine Corps—who are the shoppers, dedicated to acquisition, what that means in real terms is in our poor little old budget of about $40 billion, we actually pay DOD about $15–$20 billion for the service of buying $40 billion worth of equipment.

Do you think if we implement the acquisition reforms that we have put in place, that we will be able to cut back on that 300,000 men acquisition force substantially?

Mr. DECKER. Absolutely.

Mr. HUNTER. By what percent, Mr. Secretary? Can we cut it in half?

Mr. DECKER. I don't know if you could get that far. Thirty percent is my gut feel.

If this was a business, we could do that pretty fast.

General HITE. If I may add, we're on that glide path. The Army Materiel Command has been on a tremendous downsizing effort for the last 4 or 5 years. If you look at the civilians in the Army, in 1989 we had 403,000 civilians. Today we have about 259,000, and it's continuing to go down.

Mr. HUNTER. But a lot of those folks were bending metal, weren't they? I'm talking about straight paper pushing.

General HITE. The answer is yes, you can.

Mr. HUNTER. If you could get the numbers on the way you follow this glide path down with the Materiel Command to maybe Mr. Thompson or Mr. Andahazy, we would appreciate it.

General HITE. Yes, sir.

Mr. HUNTER. Thank you, gentlemen.

Mr. DECKER. One of the problems with that, sir, I've just got to say—and I'm not necessarily advocating this; I realize you can't run the public trust quite like a business. But if you say look, we've

got to make changes, ultimately it's less painful to make them fast. But the system just doesn't let you do that. That's bigger than both of us a little bit, I think.

But we have a lot of room to cut back with acquisition reform, if we can.

Mr. HUNTER. OK.

Well, Mr. Secretary, and gentlemen, thank you for being with us today. Thanks for your endurance. This is a good, wide-ranging hearing, and I think a lot of members got to ask questions of specific importance, and we got some good general philosophies discussed and debated here on some major weapon systems.

We appreciate your attendance today, and if you can get back with any questions that were on the record in short order, we would sure appreciate it.

Mr. DECKER. We'll do that.

Mr. HUNTER. Thank you, sir.

The subcommittees are adjourned.

[Whereupon, at 1:08 p.m., the subcommittees adjourned.]

[The following information was submitted for the record:]

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
200 ARMY PENTAGON
WASHINGTON DC 20310-0200

REPLY TO
ATTENTION OF

16 APR 1996

Honorable Floyd Spence
Chairman
Committee on National Security
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

During recent Congressional testimony before your committee, I received questions on Reserve Components modernization. Although I provided some information at the hearing, enclosed is a paper which details the Army's recent successes in ensuring that our Reserve Components are equipped commensurate with their warfighting role.

The Army is committed to the Total Force Policy as exhibited by the contributions the Army National Guard and Army Reserve have made in contingency operations such as: Operation Joint Endeavor; Operation Uphold Democracy; Operation Provide Promise; the Multinational Peacekeeping and Observer Force in the Sinai; and the on-going U.S. European Command's Joint Military Contact Program. The fielding of advanced systems such as Patriot, M1A1 tanks, Avenger, Palletized Load System, and Paladin provides additional examples of the importance and confidence the Army has in our Reserve Components.

While the Army faces considerable challenges in preparing for the twenty-first century, I assure you that the Army leadership is committed to ensuring the Army National Guard and Army Reserve remain valuable members of America's Army.

Sincerely,

Ronald H. Griffith
General, United States Army
Vice Chief of Staff

Enclosure

Copies Furnished:
Honorable Ronald V. Dellums
Ranking Minority Member

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THE ARMY'S CONTINUING SUCCESS IN EQUIPPING THE RESERVE COMPONENTS

Army efforts to adequately equip the Reserve Components focus on Army procurement and redistribution/cascading. National Guard and Reserve Equipment Appropriation provides additional equipment beyond Army affordability limits. These limits include a 60% drop in the Army's Research, Development, Acquisition Budget since 1985. Throughout the Army's equipping prioritization process, the focus is on seamless integration and equipping the Total Army on the "first to fight" principle.

In Fiscal Year 95, the Army provided over $800M (approximately $430M to the Army National Guard and $370M to the Army Reserve) in Army procurement to the Reserve Components for items such as Patriot launchers, communication equipment, tactical wheeled vehicles to include the new Palletized Load System, engineer systems, and Blackhawk helicopters. In terms of redistribution, the Reserve Components received over $1.5B (predominately for the Army National Guard) in cascaded systems such as M-1/M1A1 Main Battle Tanks, Bradley Fighting Vehicles, tactical wheeled vehicles and Blackhawk helicopters. Projected Fiscal Year 96 Army procurement for the Reserve Components exceeds $700M (approximately $525M for the Army National Guard and $175M to the Army Reserve) and includes chemical protective equipment, mortar systems, tactical wheeled vehicles to include the Palletized Load System, Avenger, and Blackhawk helicopters. In terms of redistribution, the Reserve Components are programmed to receive over $1B in cascaded systems such as Bradley Fighting Vehicles and M1/M1A1 Main Battle Tanks. In addition, current plans call for the Army National Guard to receive three battalion sets of Paladin howitzers in Fiscal Year 98, five battalion sets in Fiscal Year 99, and six battalion sets in Fiscal Year 00 for a total of 14 battalions. The Army is planning to convert existing Paladin battalions from the current 3 X 8 design (3 batteries with 8 howitzers per battery) to a 3 X 6 design (3 batteries with 6 howitzers per battery) which will result in additional Paladin howitzers being available for fielding to the Army National Guard. In addition, the Army is currently planning to transfer three Active Component Avenger battalions to the Army National Guard. An initiative is underway to reduce the number of launchers in Active Component Avenger battalions to resource seven to eight Avenger battalions to be formed in the Army National Guard replacing existing Hawk and Chaparral battalions.

OSD approved plus-ups to the Army's RDA account of the FY 97 budget will result in additional Blackhawk helicopters being procured which will provide additional helicopters to the Army National Guard through FY 01. Congressional plus-ups were provided to allow for the refurbishment of three batteries of Multiple Launch Rocket Systems for fielding to the Army National Guard.

In the area of training, the Army National Guard receives training for two divisions and 12-14 brigades annually under the Battle Command Training Program at Fort Leavenworth, Kansas. In addition, the Ground Forces Readiness Enhancement is providing 1600 Active Component soldiers to support the training of Reserve Component units with another 900 programmed for assignment by October 1997. These Active Component soldiers will provide Lane Training and Battle Command Staff Training for early deploying Reserve Components units. The Army is also initiating the Total Army School System (TASS) which further contributes to seamless integration.

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QUESTION # 1

JOINT PRECISION STRIKE DEMONSTRATION (JPSD)

Mr. Hunter. For the past several years, the Army has been conducting a series of building-block demonstrations for enhanced precision strike of targets at extended ranges. The series has reportedly been very successful in demonstrating the capabilities that can be gained from the integration of high-payoff technologies; new technical, architectural and operational concepts; and existing and emerging systems for the location, identification, and attack of high-value, time critical targets. What are the results of these demonstrations to date? How are the lessons learned being translated into improved operational capabilities in the field? What new operational and materiel requirements have resulted? What has been the participation of the Marine Corps, Navy, and Air Force in the "joint" series? What is the Fiscal Year (FY) 1997 budget request for the program and what requirements are projected for the out years? Are there any shortfalls in the FY97 budget request that would prevent achieving the program's objectives?

Mr. Decker. The Army's interactive approach has been extremely successful, cost effective and has resulted in ever-increasing improvements to both Army and Department of Defense Precision Strike Capabilities. During the JPSD Precision/Rapid Counter-Multiple Rocket Launcher (P/RC-MRL) Advanced Technology Concept Demonstrations (ACTD), we were able to collect, timeline and analyze large quantities of data as well as the ability to integrate live and simulated (constructive and virtual) data with live activities on a virtual north Korean battlefield from geographically dispersed locations across the United States. This provided high fidelity simulations for command and control processes; verification and validation of key modeling parameters; and intensive early experimentation with field units for definition of Concept of Operations (CONOPS) and new Tactics Techniques and Procedures (TTPs) for the applied technology. Specifically the demonstrations have provided the following: a better interface between the Analysis Control Element (ACE), the intelligence cell, and the Deep Operations Coordination Cell (DOCC), artillery's weapons planning and targeting element; the "Stay Hot-Shoot Fast" TTPs for the Multiple Launch Rocket System (MLRS), which permits the launcher to precompute its data and lay on preplanned targets, were refined and exercised; the superior training benefit and TTPs assessment experienced within the Corps Command Elements; determined that the Modified Dual Purpose Improved

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Conventional Munitions (MOD DPICM) was not effective in stopping or delaying the threat timetable resulting in its termination and dollar savings; developed "leave-behind capabilities (2nd Generation Forward Looking Infrared sensor prototype, Command and Control (C2) software upgrades, Firefinder radar improvements, and Korean Combined Operations Intelligence Center (KCOIC)-to-2nd Infantry Division (2ID) communications equipment); the benefits of direct reporting of targeting data from aerial sensors to battalion level for rapid response missions such as Counter-Multiple Rocket Launcher (MRL); Automated Weapon Target Pairing (AWTP), which reduced MLRS fire direction times from minutes to seconds; the value of an automated Division level tactical command post with new automated technology; automation tools providing improved processing of target information; provided the battle command and command with increased situational awareness; reduced reliance on hardware connectivity; improved flow of target nominations from intel source to firing elements; improved coordination of fires with the Air Component Command and Air Defense; and operational planning and tactical employment procedures for leave-behind new technologies such as Enhanced Firefinder, Unmanned Aerial Vehicle (UAV) with a complementary sensors, Automated Deep Operations Command System (ADOCS) and commanders Heads Up Display systems.

From the three highly successful JPSD demonstrations conducted thus far, a large number of new operational and material requirements have surfaced. These include: predictive targeting capabilities and requirements for the Intelligence Preparation of the Battlefield; an Enhanced Firefinder - capable of increased rates of acquisition enemy targets as well as revised dissemination architecture; a prototype automated weapons target pairing system at the Field Artillery Battalion, Advanced ADOCS; KCOIC connectivity to 2ID Headquarters; and the critical need for terrain delimitation tools to be used by the G-2 and the Deployable Intelligence Support Element (DISE) during the intelligence preparation of the battlefield phase of combat operations. The prototype AWTP system was developed in response to a critical field artillery need to reduce the time lines in the existing Field Artillery Tactical Data Systems associated with the attack of highly mobile short dwell time targets. AWTP reduces the time required by a Fire Direction System to direct the attack of targets from over 30 seconds to less than 3 seconds. Other operational and materiel requirements that have been identified are:

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continued development and research pertaining to the second generation Reconnaissance Infrared Surveillance and Target Acquisition sensor; installation and use of a direct radio link utilizing a Synthesized UHF Computer Controlled Equipment Sub-System (SUCCESS) radio for transmission of targeting data and imagery between the KCOIC and 2ID command posts; the development of an automated capability to pass targeting data from Army fire support elements and Air Force close air support aircraft in direct support of Army units; the development of an automated interface between Army fire support elements and Navy Advanced Weapons Control System; the need for additional automation within the Black Tactical Operations Center (TAC) to support the Air Liaison Officer and the Air Force.

The FY95 JPSD demonstration highlighted both the capabilities of the Air Force and Navy to be force multipliers on the modern battlefield and the limitations imposed by systems developed in service unique stove pipes being asked to control them. The Air Force and Navy proactively participated in the FY95 JPSD demonstration's through the Distributed Interactive Simulation Environment gateway of the program's Integration and Evaluation Center. The Air Force participation originated in the Theater Battle Arena, at the Pentagon, where Close Air Support (CAS) simulation was injected onto the virtual battle field. Additionally, the Texas Air National Guard provided live CAS missions which demonstrated the effectiveness of this capability by attacking live surrogate targets at Fort Hood while recording kills on the virtual battlefield in Virginia. The Navy provided simulated Naval power from the sea through the facilities of the Johns Hopkin's University (Applied Physics Lab) aggregating the simulation of Naval Surface Warfare and Naval Undersea Warfare Centers. These simulations demonstrated the potential responsiveness of Naval Fire Support to an Army tactical call for fire against high value fixed targets. Just as the demonstrated naval fire support enhanced the army commander's capability to disrupt the flow of battle, the Air Force simulation demonstrated the force multiplier represented by CAS strike in the suppression of enemy air defense. These enhancements include the demonstration of digital call for fire into the joint arena and the integration of the air tasking order into the Divisions Deep Operations Targeting Cell automated data processing systems. In FY97-01, plans call for the Marine Corps, Air Force, and Navy to also be active participants in the Survivable Armed Reconnaissance on the Digital Battlefield (SARDB) and the Rapid Battlefield Visualization (RBV) ACTDs.

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During the FY96 RBV pre ACTD activities, the Marine Corps will be an active participant in the Joint Warfighter 1996 (Sept 96) Operability Demonstration.

As of the FY 97 Presidents Budget, the JPSD funding profile is as follows:

($K)

	FY97	FY98	FY99	FY00	FY01
PE63238 D177					
C-MRL	14.446	5.500			
SARDB	17.600	17.698	22.659	19.119	18.964
PE63734A DT12					
RBV	9.623	10.591	14.392	12.573	
Total	41.669	35.289	39.051	34.682	21.964

In FY97 and FY98, JPSD will be funding the leave behinds system in Korea which has resulted from the P/RC-MRL ACTD. Also starting in FY97 are two candidate ACTDs: SARDB and RBV. The RBV will demonstrate the ability to rapidly collect high resolution digital terrain data and permit its integration with other C2 and intelligence data bases for a multi-dimensional visualization of the battlefield. SARDB will demonstrate an optimal system of systems solution to meet the tactical surveillance and reconnaissance needs of the joint warfighter. Advanced concepts and technologies that enhance the joint warfighter's ability to conduct armed reconnaissance will be integrated with planned and fielded Reconnaissance Intelligence Surveillance and Target Acquisition systems from all services on a modern, digital battlefield in order to present a holistic approach to tactical armed reconnaissance. SARDB will also examine the payoff of technology enhancement and insertion into existing and planned reconnaissance and surveillance platforms.

There are no anticipated budget shortfalls for FY97. However, and increase in funding would result in an accelerated program, and would provide more capability to the sponsoring Commander-in-Chiefs.

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QUESTION # 2

RAPID FORCE PROJECTION INITIATIVE

Mr. Hunter. The Rapid Force Projection Initiative, one of the Department's major advanced concept technology demonstrations, will culminate in an fiscal year (FY) 1998 large-scale field demonstration of advanced technologies which could significantly increase the combat capability of light early entry forces. Drawing from a number of different program elements, the cost of the program was $85 million in FY 95 and $125 million in FY 96. What are the objectives and key elements of the Rapid Force Projection Initiative? What is the estimated FY 97 cost of the program, and what are the out-year costs? What results are expected in terms of increased combat capabilities? Are there any shortfalls in the FY 97 budget request that would prevent achieving the objectives of the demonstration?

Mr. Decker. The objective of the Rapid Force Projection Initiative (RFPI) Advanced Concept Technology Demonstration (ACTD) is to demonstrate enhanced warfighting capabilities for light, early entry forces by incorporating advanced technologies combined with new tactics, techniques and procedures (TTP). Leave behind hardware will be provided to the user for additional evaluation, training, operations other than war, and if needed, to provide a limited go to war capability. Key distinctions of the RFPI strategy are increased combat capabilities, within an airlift constrained environment, against high value targets including armor. The RFPI "Hunter/Stand-off Killer" approach provides a new way to fight by expanding the battlespace through a mix of forward deployed sensors connected through a digital command and control element to highly accurate, non line of sight weapons. The ACTD allows the user to perform very thorough evaluations before deciding on the proper, affordable mix of systems, and it allows the user to understand the implications on force structure, TTP and training. It also facilitates a flexible, less costly acquisition strategy that can save time in fielding new capabilities. The Army has performed several studies to compare the capabilities of a RFPI enhanced force versus a baseline (current) force in various scenarios. These studies indicate that the "Hunter/Stand-off Killer" approach is effective, and that in cases where the baseline force is defeated, the force with RFPI systems is more survivable and can win. The RFPI approach

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QUESTION # 2

RAPID FORCE PROJECTION INITIATIVE

would have been of great value to the 82nd Airborne Division during Operation Desert Shield, especially had the Iraqis attacked before our heavy forces could be deployed. The RFPI precision could be great assets in a situation such as Bosnia, for instance, where it might be necessary to neutralize a gun or sniper position and where the proximity of non-combatants requires minimal collateral damage. The RFPI ACTD addresses significant Army and Department of Defense needs for 21st century light forces. The funds requested in the FY 97 budget request, as well as the out-year funding, are shown in the table, below. The funds requested for FY 97 adequately support the objectives of the RFPI program. Benefits could be realized in terms of program accelerations and more robust evaluations, if enhancements were made to Multiple Launch Rocket System (MLRS) Low Cost Guidance (Program Element (PE) 0603313A), Precision Guided Mortar Munition (PE 0603004A) and a large footprint submunition sensor such as Damocles that would make MLRS an effective anti-armor weapon (PE 0603004A).

Title	PE	FY97	FY98-00
RFPI Simulation	0603313A	7.8	13.5
RFPI Demonstrations	0603313A	14.3	57.4
Light Line of Sight Anti-Tank	0603654A	18.2	13.0
Hunter Sensor Suite	0603710A	11.4	0.0
Aerial Sensor	0603710A	3.3	6.7
RFPI Command and Control	0603772A	3.9	3.0
Precision Guided Mortar Munition	0603004A	7.0	8.3
Intelligent Minefield	0603004A	2.2	0.0
MLRS Low Cost Guidance	0603313A	5.5	15.6
High Mobility Artillery Rocket System	0603313A	9.9	13.9
Enhanced Fiber Optic Guided Missile	0603313A	37.7	86.1
Automated Howitzer	0603004A	3.4	1.9
Total		124.6	219.4

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QUESTION #3

SCIENCE AND TECHNOLOGY

Mr. Hunter. Four areas of emphasis have been announced for the Army's fiscal year 1997 (FY 97) Science and Technology program: (1) technology insertion via upgrades to existing platforms; (2) support to the Joint Chiefs of Staff future warfighting capabilities and Force XXI Advanced Warfighting Experiments; (3) evaluation of the impact of advanced technology on doctrine, training, leadership development, organization, and materiel; and (4) management using a top-level-approved Science and Technology Master Plan. What are the top science and technology priorities for the Army in the budget request?

Mr. Decker. Army Science and Technology (S&T) programs are prioritized in three categories: near-term warfighting capabilities, future systems, and technology. Near-term priorities include Countermine (standoff mine detection and support for Bosnia); Combat Identification (ground-to-ground and air-to-ground); Digitization and Command, Control, and Communications (C3) extension in current and future Army systems; Rapid Battlefield Visualization including quick terrain imaging and map overlays for expanded situational awareness; Enhanced Early Entry Force capability in the form of acoustic sensors, hunter/sensor vehicles, a fiber optic guided missile on the High Mobility Multipurpose Wheeled Vehicle, and a digital tactical operations center. These near-term efforts include technology insertion and support of (JCS) and Force XXI capability objectives.

Technology for future systems has two priority foci: advanced components for the Land Warrior development program including full digitization, and guided munitions to reduce logistics and collateral damage and serve as a force multiplier. Lastly, we have two technology priorities, the Federated Labs at the Army Research Laboratory (which includes the electric gun) and Infectious Disease Research.

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QUESTION # 4

BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)

Mr. Hunter: The Army is spending almost $200 million per year on the BAT submunition, which is to be deployed in the Army Tactical Missile System (ATACMS). The fiscal year (FY96) 1996 National Defense Authorization Act expressed concern about the number of precision guided munitions being developed by the Services and directed the Secretaries of the Navy and the Air Force, in coordination with the Secretary of the Army, to perform a Cost and Operational Effectiveness Analysis (COEA) of Air Force and Navy participation in the BAT development program for possible use on fixed wing and cruise missile carriers. What is the status of the joint COEA?

Mr. Decker: The Deep Attack / Weapons Mix Study (DAWMS), which followed the FY95 Heavy Bomber Study, is due to report out later this year. In response to Congressional direction, a key objective of DAWMS is to assess the feasibility of joint development and procurement of precision guided munitions. The recommendations from this study will guide future inter-service cooperation. Currently, the Navy is considering a submarine-launched variant of the Army Tactical Missile System (SLATACMS). The SLATACMS variant could carry either anti-personnel/anti-materiel (APAM) bomblets or BATs as its payload. The Navy has studied a Tomahawk variant with a BAT payload. The Air Force has analyzed the possibility of delivering BAT with their Tactical Munitions Dispensers and Wind Corrected Munitions Dispensers from the B-2. BAT is also considered a potential future warhead growth option for the Joint Air-to-Surface Standoff Missile.

The Army supports future, mutually beneficial, joint service uses for BAT. In the near-term, the Army's priority is to get this leap-ahead capability fielded as soon as possible. Problems associated with the original BAT carrier, the Tri-Service Standoff Attack Missile (TSSAM), caused the Army to stretch the BAT development effort out twice by a total of three years. BAT is currently programmed to enter into Low Rate Initial Production in FY98. While it is too late in BAT's development cycle to consider joint development, future joint procurement is feasible. The Pre-Planned Product Improvement (P3I) BAT program, currently in Demonstration and Validation, is a more reasonable candidate for any future joint development efforts.

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QUESTION # 4

BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)

The FY97 $180.4 million BAT Research, Development, Test and Engineering funding request supports continued development of BAT ($68.6 million), ATACMS Block II ($77.6 million) and P3I BAT ($34.2 million).

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QUESTIONS #5 AND 6

UNMANNED AERIAL VEHICLES (UAV)

Mr. Hunter. UAVs are predicted to play a major role in battlefield reconnaissance on the 21st century. Recently, Army and Defense Airborne Reconnaissance Office (DARO) officials discussed the concept of linking the Airborne Reconnaissance Low (ARL) aircraft and UAVs to provide assured dissemination of battlefield intelligence to maneuver elements and attack helicopters.

What is the outcome of this effort and how would this marriage impact Army requirements for reconnaissance assets?

Mr. Decker. To explore the concept, the Army conducted tests with remote sensors and data links. The National Security Agency provided Research, Development, Test, and Evaluation funds. We presented a series of briefings for the Army and Defense Department leadership that outlined Airborne Reconnaissance Low's capability to act as a UAV "mothership." The Army then proposed several procurement funding and implementation alternatives to the DARO. However, higher priority programs have precluded DARO from funding this capability.

Mr. Hunter. Does the Army have an overall strategy for the use of UAVs on the battlefield? If not, when will it have one?

Mr. Decker. Yes, the Army has an operational concept for UAV employment that describes our strategy. A mix of UAVs appears to offer the most effective means to ensure tactical ground commanders at various echelons receive responsive, dedicated UAV support that can be coherently integrated into combat operations. The Army Intelligence Center, as the proponent for UAV doctrine within the Army, circulated an initial test draft manual on UAVs in June 1995, and anticipates publishing a capstone field manual within the next year.

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QUESTION # 7

M1A2 ABRAMS TANK

Mr. Hunter. After completing M1A2 operational testing in 1994, Department of Defense, Director of Operational Test and Evaluation reported that the M1A2 was not safe to operate because of uncommanded gun and turret movement and inadvertent machine gun fire. October 1995 re-testing confirmed prior problems and found that various electronic components in the tanks got so hot the crew had to wear gloves to keep from burning themselves. What has been done to determine the cause of these problems? What fixes have been developed? How soon will they be incorporated into the tanks -- both new production and upgraded versions?

Mr. Decker. We have isolated the root causes and implemented an ongoing corrective action plan to correct all gun/turret movement incidents reported in operational testing. The problems were software and hardware related. The fixes include changes to the software, and an improved gunners handle that prevents an unsafe condition from developing. The hardware and software fixes are being retrofitted to the vehicles at Fort Hood and being cut into the production line at the Lima Army Tank Plant, in Lima, Ohio.

We believe the machine gun incident to be an isolated event because we have many M2 machine guns deployed throughout the Army. The machine gun handgrips are modified on the M1A2 and a tank commander could inadvertently hit the trigger with a round chambered discharging a round. In response to the potential for inadvertent firing a positive safety has been added to the M2 machine gun on the M1A2. The safety is in production and has been retrofitted to all M1A2s.

Heat Build-up (touch temperature) does present a problem, especially during maintenance. The Program Manager has developed an interim fix, in response to concerns raised in operational testing, called the Touch Temperature Reduction Kit (TTRK). The kit mitigates the heat build-up in the vehicle by redirecting microclimatic cooling system air onto hot components to reduce their temperature. The retrofit of the TTRK will begin in April 1996 with production cut-in later in 1996. A more robust fix which will increase the cooling capacity within the tank, called the Thermal Management System (TMS), is in development as part of the M1A2 System Enhancement Program. The TMS is planned for production cut-in in 1999 and retrofit is currently funded.

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QUESTIONS # 8 & 9

BREACHER

Mr. Hunter. The Breacher consists of an M1 tank chassis, a mine clearing blade with an automatic depth control, and a power driven-excavating arm. The automatic depth control of the mine clearing blade is the major technological innovation on the Breacher. The blade is to have a radar-based terrain mapping system (TMS) to penetrate foliage and adjust to changing terrain features. In component shakedown testing before the TMS was integrated into the prototype vehicle, the system failed to meet accuracy requirements on both flat and varying terrain. What is the current status of the Breacher program?

Mr. Decker. The Breacher program is in Demonstration and Validation (DEM/VAL) and has completed user testing and a majority of its technical testing. The program will proceed into Engineering and Manufacturing Development (EMD) at Milestone II in June 1996.

Mr. Hunter. Has the TMS problem been corrected and tested? If not, what are the Army's plans for correcting the problem?

Mr. Decker. Because of technical problems with the TMS, the Army has eliminated the TMS requirement for the system. An analysis of the TMS's technology and a survey of currently available technologies determined that no opportunities exist which can fully support this requirement without a significant RDTE investment. As an alternative, the Army is developing improvements to the Breacher's reactive depth control system, Draft Depth Control System. This capability will be expanded during EMD to improve performance on the production vehicles. This expansion of capability will be sufficient to field a vehicle meeting the Army's operational needs. If predictive depth control technology, such as the TMS, matures sufficiently in the future, the Army will pursue it as a Pre-Planned Product Improvement.

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QUESTION #10 - 11

FAMILY OF MEDIUM TACTICAL VEHICLES (FMTV)

Mr. Hunter. By the time the FMTV's met their development and operational test requirements, the contractor had produced over 2,100 vehicles under limited rate production. These trucks require retrofit to bring them up to the same standard as the trucks which met the requirements. What is the current status of the FMTV program?

Mr. Decker. The contractor is currently retrofitting trucks to include all changes which resulted from the test phase of the program. Initial fielding of FMTV began at Fort Bragg on January 30, 1996 and are continuing at this time. The Army is currently negotiating with the contractor to stretch production of the current multiyear contract through the end of fiscal year 1998. These negotiations are expected to be completed in June 1996.

Mr. Hunter. Has the FMTV contractor started to retrofit those trucks that were manufactured before development and operational test requirements were met? If not, when is the contractor planning to start the retrofit program?

Mr. Decker. The retrofit effort began in November 1995 and will be completed in May 1996.

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QUESTIONS # 12,13

BLACK HAWK PROGRAM

Mr. Hunter. As a result of Desert Storm, the Army recognized it had deficiencies with its medical evacuation mission. As a result, the Army would like to convert some of its UH-60A Black Hawk fleet to an upgraded UH-60Q MEDEVAC configuration. The proposed "Q" configuration will provide unarmed search and rescue, navigation, and communications improvements. Additionally, a new casualty litter system will provide more movable space within the cabin, retractable seats will allow more freedom to attend patients, and an oxygen system will provide continuous flow without the use of oxygen tanks. What is the Army's medical evacuation requirement?

Mr. Decker. The Army's MEDEVAC requirement as of January, 1996, is for 363 Black Hawk aircraft.

Mr. Hunter. How much funding is needed to convert UH-60As to UH-60Qs? Is this funding in the Army's Future Years Defense Program?

Mr. Decker. The projected cost of converting a UH-60A to a UH-60Q will be $1.6 million each. The funding stream to support this follows:

($s in millions)

	FY98	FY99	FY00	FY01	FY02	FY03
Procurement	$15.6	$27.9	$42.0	$44.8	$50.0	$53.6
Quantity	10	15	20	20	22	22

(funding would continue at a level to support 22 aircraft conversions per year until completion)

This stream would result in the first 87 aircraft being converted by 2002 to support the "first to fight" units. The remainder would be converted at a rate of 22 aircraft/year. This funding is not currently contained within the Future Years Defense Program but is a candidate for funding within the Army's FY98 Program Objective Memorandum process.

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QUESTION 14

KIOWA WARRIOR

Mr. Hunter. Operational test and evaluation of the Kiowa Warrior revealed problems relating to, among other things, the impact of weight growth on the aircraft's power margin. What actions are being taken by the Army to address this problem? Specifically, what is the Army doing to increase the ability of the Kiowa Warrior to auto-rotate properly?

Mr. Decker. Weight Growth: The Army is installing a new R-3 model engine which will permit operation at the max gross weight of the aircraft of 5500 pounds and improve the hot temperature performance. The engine includes a Full Authority Digital Engine Control (FADEC), which precisely controls the engine speed and more than doubles the reliability of the engine. Autorotation: To improve the autorotational capabilities the following actions are ongoing:

The zero collective pitch stop will be adjusted to trim the rotor in autorotation, rather than the current setting which requires the pilot to constantly modulate the controls to bracket 100 percent rotor speed.

Training at the school will emphasize autorotational procedures.

The Engine Caution/Advisory/Warning software will be revised to reduce ambiguities and thus reduce pilot reaction time in the event of an engine failure.

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QUESTION # 15 a.b.

LONGBOW APACHE

Mr. Hunter. Additional funding was authorized and appropriated by Congress to enable the Army to accelerate Longbow Apache procurement by entering into a multiyear contract for the aircraft. The Army has until May 26, 1996, to definitize either a single-or a multiyear contract with the prime contractor. Has the program office prepared the justification showing that the Longbow Apache meets 10 USC 2306 criteria for multiyear procurement?

Mr. Decker. Yes.

Mr. Hunter. Is this also the case for the Black Hawk?

Mr. Decker. No. The program office is currently preparing required justification for this Fiscal Year 1997-2001 multiyear procurement.

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QUESTION #16

UNMANNED AERIAL VEHICLES (UAV)

Mr. Weldon. Is there any funding in fiscal year (FY) 1997 request that is being requested for demonstrating the use of laser target designators or similar capabilities with UAVs for surface-to-surface or air-to-surface weapons employment?

Mr. Decker. No, there is no funding in the Army FY97 request for laser target designator capability. However, the Army has $2.9 million budgeted in FY97 for demonstration of a similar capability (Reconnaissance, Surveillance, Target Acquisition II) within the Counter-Multiple Rocket Launcher Advanced Concept Technology Demonstration.

INSERT FOR THE RECORD
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SUBCOMMITTEE ON PROCUREMENT AND
MILITARY RESEARCH AND TECHNOLOGY
ARMY MODERNIZATION
19 MARCH 1996

QUESTION #17

FUNDING TRANSFER

Mr. Weldon. Department of Defense recently moved the funding or a portion of the funding of the funding for some programs into Research and Development (R&D) from procurement after concluding those programs more appropriately should be categorized as R&D. Please provide a list of those programs, as applicable, and the associated funding. For classified programs, please provide the funding under "classified" and provide the classified details to the committee.

Mr. Decker. The recent Department of Defense move of funding or a portion of the funding for some programs from procurement to R&D referred to in your question does not apply to the Army for fiscal year 1997. The Army did not move programs funding from procurement to R&D during the time period in question.

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PROCUREMENT AND MILITARY RESEARCH AND TECHNOLOGY
SUBCOMMITTEE
FY 97 ARMY MODERNIZATION
19 MARCH 1996

QUESTION # 18

DAGGR AND NAUTILUS PROGRAMS

Mr. Weldon. Last year, senior level Army officials advised the committee that both the Depressed Altitude Guided Gun Round (DAGGR) and Nautilus programs were high priority and that the Army supported additional funds for these programs. Yet, it is my understanding that either no funding or insufficient funding is included in the fiscal year 1997 request for these programs. Please provide us with the status of these programs, the priority of these programs, and why the funding levels in the request are what they are.

Mr. Decker. DAGGR and Nautilus are both high priority programs. However, the Army modernization budget is tightly constrained making new program starts very difficult. For the DAGGR program to begin experiments to intercept a target with a low cost command-guided interceptor we would need $8.8 million in fiscal year 1997. We have a requirement of $26.5 million for Nautilus in fiscal years 1997 - 2000. We have an unfunded requirement of $6.5 million for fiscal year 1997. We are planning to fund a total of $20 million in the years 1998 - 2000 to jointly conduct tests with the Israeli's to continue to evaluate laser capabilities against low altitude targets.

INSERT FOR THE RECORD 1 of 2
HOUSE NATIONAL SECURITY COMMITTEE
SUBCOMMITTEE ON PROCUREMENT
AND MILITARY RESEARCH AND TECHNOLOGY
ARMY MODERNIZATION
19 MARCH 1996

QUESTION # 19-21

COMANCHE PROGRAM

Mr. Dornan. As you know there is a great deal of support here in Congress for the Army's new scout helicopter, the RAH-66 Comanche. We added funding to the program last year in hopes of putting the aircraft back on track towards an initial operating capability (IOC) of fiscal year (FY) 2003. I also have some more near-term goals for additional funding on which I would appreciate your personal opinion. What additional funding would be necessary in FY 97 to provide aircraft for a national training center (NTC) type demonstration in FY 99?

Mr. Decker. An increase in FY 97 and 98 is required to provide aircraft for an NTC type demonstrationin FY 99. It would require approximately $200 million more in FY 97 and FY98 to assure an FY 99 demonstration.

Mr. Dornan. What benefit would accelerated production of early operational capability aircraft for field testing provide in terms of allowing the Army to learn "how to fight" Comanche?

Mr. Decker. The major benefit is to allow the soldier time to evaluate the Comanche in the field environment and be able to feed user input back into the design process and improve the Comanche's warfighting design. Early understanding of the warfighting capabilities that Comanche brings to the battlefield allows the Army to improve the supporting communications networks of other systems to leverage the overwhelming capability Comanche brings to the battlefield.

Mr. Dornan. What additional funding is necessary in FY 97 to keep open the option of an FY 03 instead of an FY 06 IOC?

Mr. Decker. A plus-up of approximately $200 million in FY 97 will posture the program for restoration of an FY 03 IOC. With additional out-years funding, the FY 03 IOC program would ultimately result in a $3 billion savings over the current program. The effective use of FY 97 funds are not contingent upon additional funding in the out-years. A restoration of the program to an FY 03 IOC would also require additional funds in the remainder of the current future years defense program (FYDP) and beyond. The Army has considered this

HOUSE NATIONAL SECURITY COMMITTEE
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QUESTIONS # 19-21

COMANCHE PROGRAM

option. However, due to current funding constraints and near-term operational requirements, the Army has chosen to continue with the FY 06 IOC program. Increases in the FYDP required for restoration of the FY 06 IOC are:

(Escalated $s in millions)

	FY98	FY99	FY00	FY01
Research, Development Test & Evaluation (RDTE)	445	370	270	60
Procurement			240	360

QUESTION FOR THE RECORD
HOUSE NATIONAL SECURITY COMMITTEE
MILITARY PROCUREMENT SUBCOMMITTEE
RESEARCH AND DEVELOPMENT SUBCOMMITTEE
MISSILE DEFENSE
MARCH 7, 1996

QUESTION NUMBER 1

NAVY UPPER TIER

Mr. Dornan: General O'Neill, I note in your prepared testimony, page 7, regarding Navy Theater-Wide missile defense or what we call Navy "Upper-tier" missile defense, you state, " the Navy Theater wide system will operate free of sovereignty or host nation support issues, free to be deployed instantly whenever our national interest requires."

I would appreciate you and Admiral Hood further commenting on this forward deployed, non-intrusive missile defense capability with specific opinion on what this capability would mean in the current situation in the Far East where one of our allies, Taiwan, is being overtly threatened by ballistic missile attack from mainland China.

Admiral Hood: For over 50 years the United States has pursued a "forward deployed" policy as a cornerstone of our Nation's defense posture and the United States Navy has been in the forefront in the execution of this policy. The recent events involving Taiwan are illustrative, as ships responding to tasking orders were on station in a matter of hours. This deployment was accomplished in international waters without violating national sovereignty.

If the national command authorities directed, naval ships, employing systems as envisioned in either the Navy Area or Theater-Wide Defense programs, could defend Taiwan against theater ballistic missiles. Theater Wide equipped ships could protect the entire island of Taiwan, while Navy Area equipped ships could provide defense of coastal areas.

ENVIRONMENTAL PROGRAMS IN THE DEPARTMENTS OF DEFENSE AND ENERGY—H.R. 3230

HOUSE OF REPRESENTATIVES, COMMITTEE ON NATIONAL SECURITY, MILITARY PROCUREMENT SUBCOMMITTEE JOINT WITH MILITARY READINESS SUBCOMMITTEE,
Washington, DC, Thursday, March 21, 1996.

The joint subcommittees met, pursuant to notice, at 2:25 p.m., in room 2118, Rayburn House Office Building, Hon. Duncan Hunter (chairman of the Subcommittee on Military Procurement) and Hon. Herbert H. Bateman (chairman of the Subcommittee on Military Readiness) presiding.

OPENING STATEMENT OF HON. HERBERT H. BATEMAN, A REPRESENTATIVE FROM VIRGINIA, CHAIRMAN, MILITARY READINESS SUBCOMMITTEE

Mr. BATEMAN. The joint subcommittee hearing will please come to order. First, let me apologize. We remained on the floor anticipating a vote that was supposed to come immediately, and then there was no vote. We apologize to everyone for having delayed you.

The program called for my colleague Mr. Hunter to open the meeting, but since he has not arrived, I am going to proceed with the short opening statement that I have prepared, and then we will await Mr. Hunter and any statement he may have.

The environmental programs of the Department of Defense, over which the Readiness Subcommittee has responsibility, are in a comparatively better state than those of the Department of Energy.

For instance, unlike DOE, DOD has finally hit the crossover point and now spends more environmental money for actual cleanup than it does on studies, investigations and administrative overhead.

In addition, DOD has done a relatively good job of identifying and characterizing the environmental problems that exist on its many installations and formerly used defense sites.

However, there is still substantial room for improvement. DOD spends too much money on environmental cleanup for too little return. In 1984, DOD spent about $200 million for environmental cleanup. The fiscal year 1996 budget for cleanup alone at active and closing basis was almost $2 billion.

Despite such a dramatic funding increase, less than 10 percent of DOD sites have been completely cleaned up. The Department has also consistently underestimated the cost of environmental cleanup, and the latest estimates suggest that the DOD cleanup program will cost at least another $30 billion—obviously a cause for concern.

There are several environmental issues with which we need to come to grips as we move into the annual authorization cycle. The first is the question of DERA (Department of Defense Environmental Restoration Account) or DERA devolvement. The Department is proposing to split its principal cleanup account into four separate accounts that would be administered by the several services. This would result in less funding for environmental restoration activities since DERA would have to compete with other service accounts for funding. Such a change would also yield less congressional oversight since the budget line as we know it would disappear.

I look forward to the testimony of our witnesses about the wisdom of devolving this account.

A second important issue is the level of funding for fiscal year 1997, particularly with respect to the DERA and environmental compliance accounts. Last year, the DERA budget was reduced by $200 million from the President's request. This reduction reflects the view of many members of the committee that we have been spending too much for environmental cleanup for too long, with too little to show for our expenditures. It will be useful to learn about the Department's request and its justification for this year's budget in these areas.

Today's hearing recognizes the importance of the environmental programs to the overall operations of the Department of Defense and the Department of Energy and seeks to achieve several objectives. First, we expect to learn about the programmatic and budgetary requests of the two departments. Second, we hope to hear about the departments' position with respect to Superfund reform. Legislation is currently pending in the Commerce Committee. The law has serious implications for the cleanup operations of the Departments of Defense and Energy, and I believe it is important to build a record to support changes that would benefit these departments.

Finally, we hope to get a better understanding about how well DOD and DOE are managing their environmental programs. In the long run, we hope to be able to help these departments achieve greater cost savings and efficiencies of administration as they perform environmental activities.

I see that my colleague Mr. Hunter is here, so I will yield the chair to him.

[The prepared statement of Mr. Bateman follows:]

OPENING STATEMENT OF CHAIRMAN BATEMAN
JOINT PROCUREMENT/READINESS
SUBCOMMITTEE HEARING ON DOD AND DOE
ENVIRONMENTAL PROGRAMS
MARCH 21, 1996

Thank you , Mr. Hunter. I join you in welcoming our witnesses this afternoon.

The environmental programs of the Department of Defense, over which the Readiness Subcommittee has responsibility, are in a comparatively better state than those of the Department of Energy. For instance, unlike DoE, DoD has finally hit the cross-over point and now spends more environmental money for actual cleanup than it does on studies, investigations and administrative overhead. In addition, DoD has done a relatively good job of identifying and characterizing the environmental problems that exist on its many installations and formerly used defense sites.

However, there is still substantial room for improvement. DoD spends too much money on environmental cleanup for too little return. In 1984, DoD spent about $200 million for environmental cleanup; the fiscal year 1996 budget for cleanup alone at active and closing bases was almost $2 billion. Despite such a dramatic funding increase, less than 10 percent of DoD sites have been completely cleaned up. The department also has consistently underestimated the costs of environmental cleanup, and the latest estimate suggests that

DoD's cleanup program will cost at least another $30 billion, obviously a cause for concern.

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I look forward to the testimony of our witnesses. Thank you, Mr. Chairman.

OPENING STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. Well, Mr. Chairman, thank you, and I thank you for making such a complete overview with respect to the Military Readiness Subcommittee. As you know, the Department of Energy's environmental management budget, over which the Procurement Subcommittee has jurisdiction, has also grown enormously in the last few years, and in 1989, the budget for environmental management was $440 million. It was triple that in 1991, and in 1992, it almost tripled again. Last year, the administration's request was over $6 billion.

I recognize that the Department has taken over additional facilities from the Office of Defense Programs, which will explain some of the increase, but we also recognize that these rapid advancements cannot and should not continue.

Although I have not had the opportunity to study this year's budget request in detail, it appears, at least initially, that it is about $500 million below last year's request. I certainly assume that we have now turned the corner.

We are all familiar with the various reports that have severely criticized the progress that is being made in light of these enormous expenditures. With long-term costs for completing this remediation effort now estimated to be between $200 billion and $350 billion, we must explore ways to do things better and more efficiently. The taxpayers simply will not stand for unlimited spending without tangible results.

Our efforts in the Military Procurement Subcommittee last year were focused principally on two areas—gaining an understanding and control over what we believed and what were later found to be very large and excessive amounts of uncosted balances, and second, obtaining reductions in administrative and overhead costs at DOE headquarters.

During the conference on the authorization bill, we were able to agree on reductions in these two areas, totalling a little bit over $450 million from the President's fiscal year 1996 budget request.

We think these reductions, which were matched by the appropriators, were reasonable, justified and responsible, and apparently, the President agreed with that assessment.

Secretary Grumbly, I have received your testimony, and frankly, I am pleased by the progress the office is making in these two areas.

In the coming month, this subcommittee will again be looking at ways to obtain sensible and long-term cost savings. Whether those options include contract reform, privatization, accelerating cleanup at certain sites to reduce the long-term carrying costs, new technology or legislative reform, we all have a stake in finding ways to make DOE's environmental management program operate in the most efficient and cost-effective way possible.

While contract reform and privatization are currently in vogue, I very much want to be assured that we in Congress are not creating just another mortgage which our children will have to pay. We will proceed cautiously, and only after we are convinced that real and meaningful cost savings will accrue. I want to be convinced

that the Government will be protected against unexpected expenditures down the road. I hope the witnesses will touch on these topics today.

Finally, an administrative issue. You have each been urged over the last several weeks to keep your oral presentations under 5 minutes—something that is very difficult for Congressmen, I might add. We will then have some opportunity for questions and a little give and take. With that in mind, please be assured that your full statement will be entered in the record.

Herb, I want to say to you—the co-chairman of the Military Readiness Subcommittee, the very distinguished gentleman from Virginia—I think it is a good idea that we are doing this hearing jointly, for one reason, just because of the enormity of the information to be disseminated. It is important to have both subcommittees take it in at the same time for maximum efficiency, and also because it is a real pleasure to work with you.

Let me say also that Mr. Hastings, who represents a "hot spot" in this whole situation, one of the primary centers in the nuclear weapons and materials complex, and he would like to say a word or two. And if you could hold on for one second, Doc, before we do that, we are going to recognize the distinguished gentleman, the ranking member of the Readiness Subcommittee, Mr. Sisisky, for any comments he might want to make.

Mr. SISISKY. Thank you, Mr. Chairman. I have a wonderful statement that I would ask unanimous consent, in order to save time, to place in the record.

[The prepared Statement of Mr. Sisisky was never supplied for the record.]

Mr. HUNTER. You got it, and you can see that the ranking member of the full committee approves of that action very strongly.

[The prepared statement of Mr. Hunter follows:]

OPENING STATEMENT OF CHAIRMAN HUNTER
JOINT PROCUREMENT/READINESS
SUBCOMMITTEE HEARING ON DOD AND DOE
ENVIRONMENTAL PROGRAMS
MARCH 21, 1996

[Gavel the Hearing to Order]

The Hearing will come to order. We have a full agenda of witnesses today so I will be brief.

First, however, I want to extend a personal welcome to the witnesses who have agreed to appear before this joint hearing of the Procurement Subcommittee and the Readiness Subcommittee. Together these two Subcommittees have responsibility for almost $11 billion in the Administration's annual Environmental compliance and remediation budget.

As most of you here today know, the Department of Energy's Environmental Management Budget, over which the Procurement Subcommittee has jurisdiction, has grown enormously in just a few short years. In 1989, the budget for Environmental Management was $440 million; it was triple that in 1991. In 1992, it had almost tripled again. Last year the Administration's request was over $6 billion. Now, I recognize that the Department has taken over additional facilities from the Office of Defense Programs which will explain some of the increase. But, we also recognize that these rapid increases can not and should not continue. Although I have not had the

opportunity to study this year's budget request in detail, it appears, at least initially, that it is about $500 million below last year's request. I certainly assume we have now turned the corner.

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Our efforts at the Subcommittee last year were focused on principally two areas: (1) Gaining an understanding and control over what we believed and, what were later found to be very large and excessive amounts of "uncosted balances" and (2) Obtaining reductions in administrative and overhead costs at DoE headquarters. During the conference on the authorization bill, we were able to agree on reductions in these two areas totaling over $450 million from the President's FY 96 budget request. We think these reductions which were matched by the appropriators were reasonable, justified and responsible. Apparently the President agreed with our assessment.

Secretary Grumbly, I have reviewed you testimony and frankly, I am pleased by the progress your office is now making in these two areas.

In the coming month, this Subcommittee will again be looking at ways to obtain sensible and long term cost savings. Whether those options include contract reform, privatization, accelerating cleanup at certain sites to reduce the long term "carrying costs", new technology or legislative reform, we all have a stake in finding ways to make DoE's Environmental Management program operate in the most efficient and cost effective way possible. While "contract reform" and "privatization" are currently in vogue, I very much want to be assured that we in the Congress, are not creating yet another "mortgage" which our children will have to pay. We will proceed cautiously and only after we are convinced that real and meaningful cost saving will accrue. I want to be convinced that the government will be protected against unexpected expenditures down the road.

I hope the witnesses will touch on these topics today. Finally, an administrative issue, you have each been urged over the last several weeks to keep your oral presentations under five minutes. We will then have some opportunity for questions and a little give and take. With that in mind, please be assured that your full statement will be entered in the record.

I will now recognize the gentleman from Virginia and the Chairman of the Readiness Subcommittee, Mr. Herbert Bateman for any comments he might wish to make.

Mr. HUNTER. The gentleman from Washington is recognized.

STATEMENT OF RICHARD 'DOC' HASTINGS, A REPRESENTATIVE FROM WASHINGTON STATE

Mr. HASTINGS. Thank you, Mr. Chairman. I appreciate the opportunity that you and Mr. Bateman have accorded me to sit here on this panel today because I do, as you mentioned in your brief introduction, have very much of an interest in the testimony today, principally because my area of concern is that area that is now outside of DOD in that I represent the district with the Hanford Nuclear Reservation.

I think it is worthwhile to remind ourselves of the historical importance of the Hanford Reservation, plus Oak Ridge and others, because I have discovered in my short time here and, frankly, discussing this issue with my colleagues, that the farther we get away from the Second World War, the more we forget about the role that these areas played, frankly, in not only winning the Second World War, but in winning the cold war.

I have lived in the Tri-City area for 49 years, and while I never worked at the Hanford site, I am very much aware of what went on out there. Frankly, that area is very proud of what they have done in the cold war and with the Second World War. But the role at Hanford has changed. It is no longer in defense production, as it was until the mid-eighties, and now it is in principally just a cleanup mode.

I think—and I want to say this as emphatically as I can—it is the responsibility of the Federal Government to be involved in this because we have historically taken care of those who have helped us in military conflicts, and I think that when you look at the Hanford site and others—Oak Ridge and Savannah River—they all fall into that same category, where it was because of a war effort that some mistakes were made that we now have to face.

At Hanford, for example, there are 177 underground tanks that have some 60 million gallons of waste, and it is not all nuclear; it is a mixture of hazardous and nuclear waste. And it would have been very, very nice if, at the time when those wastes were put in there, it had been neatly labeled on a piece of masking tape that this was this, and this was that. But that was not done, and now it is the responsibility, obviously for the safety of that area, to clean it up.

What I have observed and what I have tried to do since I have gotten into this Congress is to try to change the method by which those areas are attacked. I have worked very closely from the very first day with representatives of the Department of Energy, because one of the observations that I noted in Hanford, and I think it is probably true in the other sites because they are old DOD sites, is that they worked off the old DOD concept of cost-plus. Cost-plus worked fine when you were in a national emergency, and you had to build something right away, but we are in a different era, and one of the things that, because of my business background, I felt was important was that we change the cost-plus to performance-based.

The Department of Energy is moving in that direction, and I congratulate them on that. But there are other areas that need to be

streamlined also, and one is the area of regulations. Regulations at nuclear sites are very unique, yet they are under Superfund, and sometimes those things conflict with each other. And unfortunately, many times, we do not get the work done, and what we end up doing in many respects is moving paper and not getting the job done.

There is a perception in this Congress that has been going on long before I got here that this is not getting done at these sites. I can say that there are things getting done, and a lot of it is because of initiatives that were started by the Department of Energy, particularly on the tanks. As a matter of fact, I was home just last weekend, and I stood on a tank farm where, just 2 weeks ago you could not have stood on this tank farm because of the surface contamination; but because of the acceleration in cleanup and the will, really, of the contractor to clean up other sites, now it is a fact, and I stood on one of these contaminated sites.

And because of other streamlining of regulations, we are moving spent fuel rods, which were at very close proximity to the Columbia River and which were meant to be stored for only 20 days but in fact have been stored there for over 20 years, to another site.

Those are real things that are happening that we do not take credit for, but I think a lot more needs to be done.

So with those brief opening remarks, Mr. Chairman, I look forward to hearing what all the panels have to say, and I do have some questions that I want to ask various of them as we go along.

With that, Mr. Chairman, I do have a short statement, which is much shorter than this statement, that I would like to put in the record if I may.

Mr. HUNTER. Certainly, and I want to thank the gentleman for his tireless work in this area. He is one of the experts in Congress, and we appreciate his work.

[The prepared statement of Mr. Hastings follows:]

STATEMENT OF THE HONORABLE DOC HASTINGS
NATIONAL SECURITY COMMITTEE
SUBCOMMITTEES ON PROCUREMENT AND READINESS
MARCH 21, 1996

Mr. Chairman:

Let me begin by thanking you for agreeing to hold this hearing today. As you know, this is a massive program that affects dozens of states and Congressional districts. It is also one that deserves both our support and our careful oversight.

The Hanford Site, which is located in my Congressional district, is home to nearly 2/3 of the nation's volume of defense nuclear waste, spread over more than 500 square miles. Fifty-five million gallons of nuclear and hazardous waste is stored in 177 underground storage tanks. 2,500 metric tons of spent fuel sits in decaying cooling ponds one-hundred yards from the Columbia River. And thousands of tons of soil, not to mention millions of gallons of ground water, is contaminated.

All of this is the result of our efforts to fight and win WW II and the Cold War. These are defense wastes, and the federal government has an obligation to clean up these sites.

We do, however, need to ensure that our dollars are spent effectively. Last year, the Department cut Hanford's workforce by 26%. 4,800 of my constituents lost their jobs as a result. Just this week, the Department of Energy proposed a budget that will impose further significant budget cuts on each of our sites. This will have a tremendous impact on our local communities, and on our ability to proceed with scheduled cleanup activities. We will be working with the National Security Committee, and with the Appropriators, to lessen the impact of these reductions.

The Administration's budget cuts emphasize the need to explore legislative changes to our federal cleanup and environmental management laws. We must cut through the red tape. We must empower our local DOE officials to make expedited decisions. And we must work with our state officials to codify the "single regulator" agreements that reduce bureaucratic delay and speed actual environmental cleanup. I believe that there are a number of solutions that will find broad, bi-partisan support here on the Committee, among the nation's governors, and even with DOE officials. In fact, in all fairness, the Department has begun to implement many of the same common sense reforms that we have proposed in the past few months. I pledge to work towards fundamental agreement on these issues this year.

I look forward to the testimony of our witnesses today, and again thank the Chairmen of both Subcommittees for holding this hearing.

Thank you.

Mr. HUNTER. Mr. Taylor, if you have any remarks that you would like to make, and also Mr. Pickett thereafter, please feel free.

Mr. TAYLOR. I have no statement, Mr. Chairman.

Mr. PICKETT. I have no statement, Mr. Chairman.

Mr. HUNTER. Does Mr. Dellums have any statement he would like to make?

Mr. DELLUMS. No, Mr. Chairman.

Mr. HUNTER. OK. Mr. Talent, do you have anything you would like to say?

Mr. TALENT. Oh, 15 or 20 minutes worth, Mr. Chairman. No, actually, I think I will pass now.

Mr. HUNTER. OK. Thank you.

We are going to lead off with three agencies that have great analytical capability and really are great servants of the U.S. Congress in terms of letting us know exactly what the lay of the land is.

Representing CRS, Mr. Lee; CBO, Cindy Williams; and Victor Rezendes with GAO. We appreciate all of you being here.

Why don't we start off with Mr. Martin Lee. Sir, the floor is yours.

STATEMENT OF MARTIN R. LEE, SECTION HEAD, ENVIRONMENTAL PROTECTION SECTION, CONGRESSIONAL RESEARCH SERVICE

Mr. LEE. Thank you. Mr. Hunter, Mr. Bateman, and members of the subcommittees, I am Martin Lee, head of the Environmental Protection Section at the Congressional Budget Office and the General Accounting Office.

I would like to submit my written statement for the hearing record.

Mr. HUNTER. Without objection, because we have a lot of panels today, we would be happy to take the statements, and please summarize and give us the high points. Thank you.

Mr. LEE. Briefly, I will review past and current funding for these activities, discuss the statutory basis for the program and highlight three current legislative issue areas.

As the pie chart shows on the easel here, defense-related environmental programs represent about $10.3 billion for fiscal year 1996; roughly one-half of that, the green portion, is for Department of Defense activities, and the other half, the yellow portion, for Department of Energy activities.

Both programs have grown significantly in the last few years. For instance, as the next figure shows, the total spent on the Department of Defense Environmental Restoration Account, or DERA, in 1984 was about $219 million. In this fiscal year, fiscal year 1996, DOD identified environmental funding of almost $5 billion.

Two things contribute to this significant increase. The first is that DOD now identifies more of its costs as environmental, and second, it is subject to the demands of more environmental requirements.

The DOE portion, as depicted in the next chart, Figure 3, represents only DOE defense-related activities; it does not include DOE's civilian environmental programs. From the period of its first

consolidation in 1989 through the current year appropriation of $5.6 billion, funding has grown over threefold. Roughly 44 percent of the DOE allocation is for waste management, a reflection of the Department's effort to comply with Federal and State environmental laws. About 29 percent is directed to site restoration efforts, and another important component, roughly 28 percent, is for stabilizing defense nuclear sites.

Prior to major changes in the 1980's, the sole governing statutes were the annual defense authorization acts and the Atomic Energy Act. But new provisions in the 1980's, especially the Resource Conservation and Recovery Act Amendments in 1984 and clarifying amendments to Superfund in 1986, brought DOE and DOE more specifically under these statutes. And we can credit the demands of these laws and many State laws with the greatly increased funding of the past few years.

The question of whether DOD and DOE were covered by Federal and particularly State requirements was ultimately clarified by Congress in the 1992 Federal Facilities Compliance Act.

I would like to highlight three legislative areas potentially affecting defense environmental programs. The first involves possible amendments to Superfund, which interests both DOD and DOE; and then, two DOD-specific issues—controls on compliance funding and decentralization of funding for environmental restoration.

Congress is considering major Superfund reform legislation. Currently, the chief bill in the House is H.R. 2500 in the Commerce Committee. There are a number of issues of significant interest to DOE and DOD.

In terms of budgetary impact, reforms for changing the cleanup standards and the selection of remedies are the most prominent issues of the Departments. They are some of the most contentious issues also. DOD and DOE seek, and H.R. 2500 largely includes, adopting more site-specific factors including risk assessment in decisionmaking, narrowing the field of applicable requirements, eliminating Superfund's preference for permanence and treatment, focusing more on costs, and allowing generic remedies.

DOD and DOE also seek consideration of future land use and the involvement of community groups in selecting remedies, both of which H.R. 2500 would allow.

One issue of special concern to DOD is whether an entire facility, or only its contaminated portion, should be listed on the National Priorities List for Superfund cleanup. H.R. 2500 would allow uncontaminated parcels to be excluded from such listings. It would also allow EPA to defer NPL listing if a State is already overseeing the site, something which DOD and DOE also seek.

While the bill allows Federal facilities to be designated for application of innovative technologies, it does not allow deferring cleanup until new cleanup technology is available, which is something that both departments seek.

For DOD, there are some remaining base closure issues relating to parcelling and leasing of contaminated military facilities. They are addressed in part by H.R. 2500.

DOD and DOE share interests in many of these issues and seek changes in Superfund provisions. I should also mention that other

interested parties, such as States and community groups, may have other perspectives on these issues and on H.R. 2500.

How to constrain the increasing growth of DOD's costs for complying with Federal and State environmental requirements is a major policy question. More detailed reporting on compliance costs now mandated by Congress may help ensure that future compliance funds are directed toward legally binding requirements and aid in determining budget priorities and the appropriate expenditure of compliance funds.

Some DOD officials are concerned that Congress may impose a cap on compliance funding which, they argue, could cause installations to be unable to comply with some regulations and perhaps cause inefficiencies.

Last, as the DOD chart shows, the DERA account has been a highly distinct separate account since 1984 because it is a congressionally-mandated account. Such prominence facilities congressional oversight of this $1.4 billion annual program. DOD officials want Congress to disestablish DERA as a separate account, allowing individual services to build from the bottom up.

DOD officials note that the services now manage restoration activities themselves in any event. By putting cleanup and restoration costs into the same pot as operation and maintenance costs, the Office of the Secretary of Defense hopes to create a greater incentive for the services to pursue efficiencies at their own levels.

From Congress' point of view, decentralization of funding from the Office of the Secretary may reduce the longstanding visibility of the program and perhaps complicate congressional oversight.

This concludes my testimony. I thank you for the opportunity to appear here this morning.

[The prepared statement of Mr. Lee follows:]



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Statement of

Martin R. Lee, Section Head
Environmental Protection Section
Congressional Research Service

Before the

House Committee on National Security
Subcommittee on Military Procurement
Subcommittee on Military Readiness

March 21, 1996

Defense Environmental Programs

Introduction

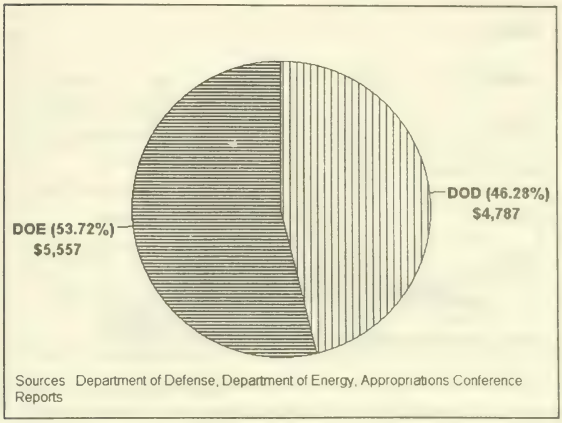
Good morning, I am Martin Lee, Head of the Environmental Protection Section at the Congressional Research Service, and I am pleased to join my colleagues from the Congressional Budget Office and the General Accounting Office to discuss defense-related environmental issues. (I would like to submit my written statement for the hearing record.) Briefly, I will review past and current funding for these activities, discuss the basic laws that provide the statutory basis for these programs, and highlight three current legislative issue areas.

1. Past and Current Funding for Defense-related Environmental Programs

As Figure 1 demonstrates, defense-related environmental programs represent about $10.3 billion for fiscal year 1996; roughly 46%, or $4.8 billion, of this amount is allocated to Department of Defense activities for complying with federal and state environmental regulations, and to clean up DOD hazardous waste sites. The remaining fifty-four percent, or $5.6 billion, is budgeted for Department of Energy activities to manage and clean up defense-related nuclear wastes. With increasing responsibilities from federal and state statutes, both programs have grown significantly in the past few years.

For instance, as shown in Figure 2 the total spent on the Department of Defense Environmental Restoration Account, or DERA, in 1984, - the year Congress established the account - was $219 million (in FY1996 dollars), or about 0.06% of the total DOD budget that year. In this fiscal year, FY1996, DOD identified environmental funding of almost $5 billion, about 2% of its total budget. Much of the apparent growth is due, in part, to the fact that DOD now identifies more of its costs as "environmental." Through FY1989, DOD's environment funding reflected only cleanup costs; in the FY1990 budget, DOD consolidated the costs of complying with many environmental standards including federal and state clean air, water quality and waste management regulations. In FY1991, FY1992 and FY1993, Congress included special accounts to address unique

Figure 2: Defense Environmental Funding, FY1996
(millions of dollars)



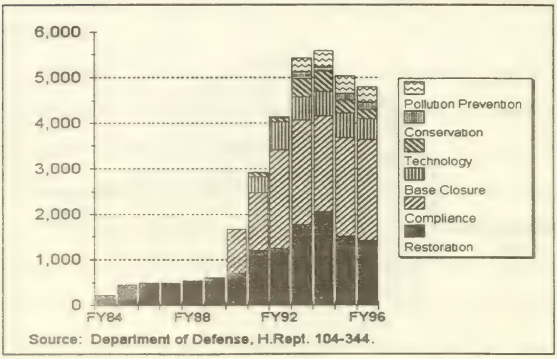
Sources Department of Defense, Department of Energy, Appropriations Conference Reports

environmental problems, including separate funds to clean up closing bases, some environmental research and development programs, and managing the special natural resources under DOD's jurisdiction - the Legacy Conservation Program. In FY1993, DOD began identifying separate funding for pollution prevention efforts at DOD.

The DOE portion, as depicted in Figure 3, represents only DOE defense-related activities; it does not include DOE's civilian nuclear programs. From the period of its first consolidation in 1989 through the current year appropriation of $5.6 billion, funding has grown $4.5 billion, or 360%. Roughly 44% of the total DOE defense budget is for waste

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Figure 3: DOD Environmental Programs, FY1984-96
(constant FY1996 dollars in millions)



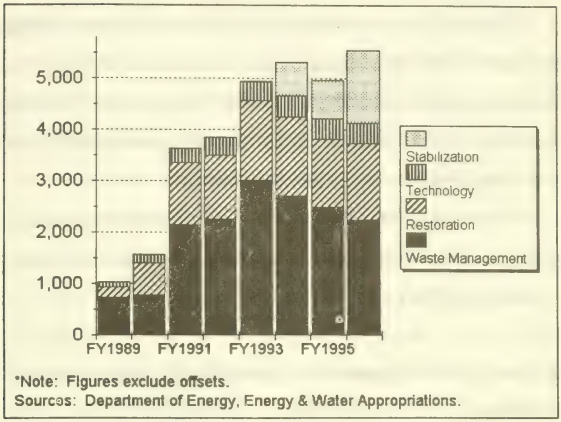
Source: Department of Defense, H.Rept. 104-344.

management, a reflection of the effort to comply with federal and state environmental laws. About 29% is allocated for site restoration efforts. Another important component is for stabilizing defense nuclear sites - 28%.

2. Statutes Authorizing These Programs

Prior to major changes in the 1980s, the sole governing statutes were the annual defense authorization acts and the Atomic Energy Act. But, new provisions in the 1980s -- amending the Resource Conservation and Recovery Act in 1984 and clarifying amendments to the Superfund law in 1986, for instance -- brought DOD and DOE specifically under these statutes; we can credit the demands of these laws, in part, with the

Figure 4: DOE Defense Environmental Programs*
(constant FY1996 dollars in millions)



*Note: Figures exclude offsets.
Sources: Department of Energy, Energy & Water Appropriations.

greatly increased funding of the past few years.

The Resource Conservation and Recovery Act, or RCRA, established a regulatory scheme covering the entire "life" of hazardous substances from initial generation to ultimate disposal. Many states had similar programs, and the question of whether DOD and DOE were covered by federal and state requirements was ultimately clarified by Congress in the 1992 Federal Facilities Compliance Act. This law proved especially important to DOE since almost all nuclear wastes are considered "mixed"

(hazardous and radioactive wastes) under RCRA and subject to federal and state compliance provisions.

Whereas RCRA looks to today and the future, Superfund concerns the past and addresses studying and cleaning up hazardous waste sites. The federal component is funded by department appropriations. The 1986 Superfund amendments further clarified that defense-related remediation and cleanup programs were subject to its provisions.

The Federal Facilities Compliance Act also clarified the applicability of other federal and state environmental laws, clean air and clean water for instance, to DOD and DOE programs.

3. Three Current Congressional Issues for DOD Environmental Programs

I would like to highlight three legislative areas of current interest potentially affecting defense environmental programs: possible amendments to Superfund, which is of interest to both DOD and DOE, and then two DOD-specific issues: controls on compliance funding and decentralization of funding for environmental restoration within DOD. Other concerned parties such as states and community groups may have other perspectives.

A. Amending Superfund

Congress is considering major Superfund reform legislation; currently the chief bill in the House is H.R. 2500. There are a number of issues of significant interest to the DOE and DOD defense environmental programs

discussed today. Table 1 shows DOD and DOE aspirations for Superfund reform based on their earlier testimony before other committees and some of the corresponding provisions of H.R. 2500.

In terms of budgetary impact for DOD and DOE, reforms for changing the cleanup standards and the selection of remedies are the most prominent issues for the departments. This is also one of the most contentious Superfund issues. DOD and DOE seek, and H.R. 2500 largely includes, adopting more site-specific factors, including risk assessment, narrowing the field of applicable requirements, eliminating Superfund's preference for permanence and treatment, focusing more on costs, and allowing generic remedies. DOD and DOE also seek consideration of future land use and involving community groups in selecting remedies which H.R. 2500 would allow. One issue of special concern to DOD is whether an entire facility, or only its contaminated portion, should be listed on the National Priorities List (NPL) for Superfund cleanup. H.R. 2500 would allow uncontaminated parcels to be excluded. It would also allow EPA to defer NPL listing if a State is already overseeing the site, something both DOD and DOE seek.

While the bill allows federal facilities to be designated for application of innovative technologies, it does not allow deferring cleanup until new cleanup technology is available, something both DOD and DOE seek. For DOD, some base closure issues relating to parcelling and leasing of contaminated military facilities continue and are also addressed in H.R. 2500. DOD and DOE share interest in many of these issues and seek

changes in Superfund provisions. H.R. 2500 largely addresses the concerns of the departments.

Table 1.
Superfund Changes Sought by DOD and DOE, and Related Provisions of H.R. 2500

Issues	Requests of Department of Defense *	Requests of Department of Energy **	H.R. 2500: Superfund Reauthorization Bill
Superfund Listing Issues	List only contaminated portions of facilities, not the whole base.	Not mentioned by DOE.	The listing notice of a Federal facility may say that uncontaminated parcels are excluded. [§607 amends §120(d)]
	Allow EPA to defer listing the site if State oversight is ongoing.	Give EPA's authority over Federal facilities to States that have corrective action or closure authority under RCRA; and require States to use CERCLA's remedy selection process in selecting corrective actions under RCRA.	The extent to which a Federal agency has arranged with EPA or a State to respond to a toxic release is to be considered when deciding whether to list a Federal facility. [§606 amends §120(d)]
Cleanup Standards and Remedy Selection	Use standardized risk analysis employing realistic assumptions, and incorporating future land use.	Use a standardized risk assessment protocol based on realistic assumptions.	Establishes a National Risk Protocol requiring scientifically objective risk assessments that include site-specific information. [§101 adds §127]
	Establish national cleanup goals to establish consistency in remedy selections.	Establish national goals for protecting health and the environment based on achievement of reasonable risk levels.	Uses drinking water standards, and a risk range of 1 in 10,000 to 1 in 1,000,000 additional lifetime cancer risk. [§102 amends §121]
	Eliminate CERCLA's reliance on "relevant and appropriate state and federal requirements," and use only applicable laws designed for cleanup.	Eliminate the law's reliance on "relevant and appropriate requirements."	Eliminates the "applicable or relevant and appropriate requirements (ARARs)" of Federal and State laws. Keeps drinking water standards, and must protect public health from realistic and significant risk. [§102 amends §121]
	Except for the worst "hot spots," eliminate the law's preference for permanent remedies and treatment.	Eliminate the law's preference for permanent remedies, and, except for "hot spots," the preference for treatment.	CERCLA's preference for permanence and treatment is eliminated. No preference or bias applies to any method of remediation. [§102 adds new §121(c)]

Issues	Requests of Department of Defense *	Requests of Department of Energy **	H.R. 2500: Superfund Reauthorization Bill
Cleanup Standards and Remedy Selection (continued)	Elevate the role of cost above the other eight factors that are considered in remedy selection.	Require direct and indirect costs of each alternative to be considered in remedy selection.	The bill prefers the cleanup option that adequately protects health and the environment at the lowest total cost over the life of the project. [§102 amends §121(f)]
	Use generic remedies to shorten study time at sites with similar problems.	Use generic cleanup standards for various future land uses for the most common contaminants. Use cost-effective generic remedies for different types of sites for various future land uses, and do expedited remedy selection.	Generic remedies may be established; where used, it is not necessary to perform a site assessment or an evaluation of cleanup alternatives. [§102 adds §121(g)]
	For some contaminants, such as radionuclides, establish cleanup levels through rule making.	Establish separate residual risk levels for specific radionuclides, and clarify they need not be below background levels.	Not specifically addressed in the bill.
Role of Future Land Use in Setting Standards and Selecting Remedies	Consider future land use when selecting the remedy. Include community groups and redevelopment entities in the decision making.	Identify future land use based on early community input. Ensure that the community has early and meaningful participation in remedy selection process. Define the cleanup standard at each site, based on future land use. Make the remedy the most cost-effective alternative that permits such future land use. Establish rational standards for groundwater cleanup based on future land use.	Remedy selection must consider current and future uses of land, water, and other resources. Recommendations of the Community Assistance Group, and views of the community are to be considered in identifying future use (but local groups are not included in decision-making). [§102 amends §121(d)]

Issues	Requests of Department of Defense *	Requests of Department of Energy **	H.R. 2500: Superfund Reauthorization Bill
Innovative Technology	Encourage the development and use of innovative technologies.		Federal facilities may be designated for R&D and application of innovative technologies. [§602(a) adds §311(h)]
	Allow short-term deferral of a cleanup when new technology will be available within a reasonable time and contamination can be contained.	The same; DOE suggested a deferral of up to 5 years.	Not addressed in the bill.
Base Closure Issues	Allow clean parcel determinations where hazardous materials were stored with no evidence of release.	Not mentioned by DOE.	The listing of Federal facilities on the NPL may provide notice that specified uncontaminated parcels are excluded. [§607 amends §120(d)]
	Allow short-term leases while cleanup is ongoing.		Sec. 2833 of the FY1996 Defense Authorization Act facilitates interim term leases (1-5 years, according to the report) by limiting the scope of any environmental impact analysis.
	Allow DOD to transfer parcels while cleanup is ongoing.		Sec. 2834 of the FY1996 Defense Authorization Act allows DOD to enter into long-term leases while environmental restoration is ongoing. [amends CERCLA §120(h)(3)]

* Based on "Superfund Reform" slide presentation [no date], and testimony of Deputy Under Secretary Sherri W. Goodman, May 9, 1995.
** Based on "Proposed Reform of the Environmental Cleanup Process (6-1-95 draft)," and testimony of Assistant Secretary Thomas P. Grumbly, May 9, 1995.

B. Can Compliance Costs Be Constrained?

I have already outlined the increasing costs for complying with a host of federal and state environmental laws; compliance is now the largest category of DOD environmental spending. In a period of increasing competition for federal dollars, the growth of this funding is a special concern.

How to constrain the increasing growth of DOD's costs for complying with federal and state environmental requirements is a major policy question. Last year, the Senate report on the defense authorization bill mandated more detailed reporting from DOD on compliance costs based on when the expenditure is required to meet particular regulations (Near-term , Class I, is required in the current fiscal year, Class II is future actions). This current tool may help ensure that future compliance funds are directed toward legally binding requirements and aid in determining budget priorities and the appropriate expenditure of compliance funds.

Some DOD officials are concerned that Congress may impose a cap on compliance funding. Too strict a cap, they argue, could cause installations to be unable to comply with some regulations, making facilities subject to court-ordered actions and perhaps leaving the department liable. Even limited caps for complying with future requirements could cause inefficiencies, say DOD officials.

Another reporting tool available to Congress and DOD is the environmental audit, now used extensively by large corporations for their facilities. Through this tool, a thorough survey of the environmental activities of military facilities may offer a better picture of the facilities' environmental standing and assist in deciding spending priorities.

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C. Should Environmental Restoration Responsibilities Be Decentralized from the Office of the Secretary of Defense to the Services?

As the previous chart depicted, funding for the Defense Environmental Restoration Account (DERA) has been a highly distinct, separate account since 1984 because it is a congressionally-mandated account. Such prominence facilitates congressional oversight of this $1.4 billion annual program. DOD officials want Congress to disestablish DERA as a separate account allowing individual services to build from the bottom up.

DOD officials note that the services now manage restoration activities themselves in any event. By putting cleanup and restoration costs into the same pot as operation and maintenance costs, the Office of the Secretary of Defense hopes to create a greater incentive for the services to pursue efficiencies at their levels.

From Congress' point of view, decentralization of funding from the Office of the Secretary may reduce the long-standing visibility of the program and complicate congressional oversight.

Mr. HUNTER. Thank you, Mr. Lee.

Ms. Williams, you are on, and Mr. Lee did not win the door prize for the short statement—but neither did Mr. Hastings. [Laughter.]

STATEMENT OF CINDY WILLIAMS, ASSISTANT DIRECTOR, NATIONAL SECURITY DIVISION, CONGRESSIONAL BUDGET OFFICE

Ms. WILLIAMS. Thank you very much, Mr. Chairman. I very much appreciate the opportunity to appear before the two subcommittees today, and I understand the agenda is very full, so I will confine my discussion to four main points.

My first point is that the scope of cleanup programs in DOD and DOE is enormous, and it is still growing. According to DOD's most recent report on the subject, the number of contaminated sites needing further study or cleanup grew from about 10,600 at the end of 1993 to about 11,800 at the end of 1994. In the same period, the number on or proposed for the National Priorities List for DOD grew from 107 to 122.

Although Department of Defense [DOD] has not released data for 1995 yet, we know that new sites typically get added to the list each year as more sites are investigated and more bases are closed. Also, some cases have to be reopened when the regulators disagree with DOD's determination that no further work is needed.

Similarly, Department of Energy [DOE] has identified some 10,500 individual sites that could potentially release contaminants into the environment. DOE's cleanup program has also been growing and is expected to grow for at least 10 more years as more facilities are taken out of production and transferred over to the Environmental Management Program.

A good indication of continuing growth on the DOE side is the number of surplus buildings that the Environmental Management Office has accepted for cleanup. That number grew from 409 in 1989 to more than 1,200 today. It is expected to grow by another thousand in the next 4 years and could eventually top 3,500.

My second point is that although both departments have certainly made progress in their environmental programs, every little permanent cleanup has actually been accomplished. In DOD's case, the Department is determined that about 12,500 of the 21,000 sites initially identified as potentially contaminated would require actual cleanup actions. Of those 12,500, only 810 had permanent cleanup measures in place by the end of 1994.

DOE's record of actual cleanups is also modest—only 142 of its 850 so-called sub-projects have either been cleaned up or found to require no further action.

My third point is that even though both departments' total cost estimates appear very large already, those estimates are still uncertain and could grow further. DOD unfortunately was unable to provide us with an estimate of the total cost of its cleanup program in constant dollars. Of course, we need to work in constant dollars if we want to make a sensible comparison between the cost of work that is already completed and the cost of work that still remains.

We do know that to date, DOE has spent about $18 billion—that is in constant 1977 dollars—on the cleanup program. In that cat-

egory, we are including DERA, Base Realignment and Closure [BRAC] cleanup, and new technology research and development.

Working from DOD's current-dollar estimate of additional costs to complete the program, we arrived at a constant dollar estimate of $23 billion. In other words, we think that DOD's constant-dollar estimate of total program costs would be about $40 to $41 billion, of which $18 billion has already been spent.

Now, it seems improbable to us, given that the cost of the program to date has been $18 billion of $40 billion total, and given that less than 10 percent of the cleanup actions have actually been accomplished, that DOD will be able to complete the cleanup program within its projected cost.

DOE now currently estimates that completing its environmental management program could cost from $180 billion to $520 billion—those are 1997 constant dollars.

DOE's mid-range base case estimate of $240 billion assumes a 20-percent increase—20-percent increase—in productivity over the next several years, and also cleanup of some facilities only to restricted use standards.

Thus, growth beyond DOE's base case estimate can almost surely be expected unless DOE and its contractors can achieve major productivity gains and also existing environmental laws get relaxed.

And my final point is that just as both programs are starting to make progress on the actual cleanup, the annual funding for both of them is declining, and unless we see major policy changes or large productivity increases, breakthroughs in technology, something like that—basically, a miracle—neither department is likely to meet all the cleanup schedules that have already been negotiated with the regulators within the budgets now being forecast.

That concludes my prepared remarks. I look forward to any questions.

[The prepared statement of Ms. Williams follows:]

CBO TESTIMONY

Statement of
Cindy Williams
Assistant Director
National Security Division
Congressional Budget Office

on
Environmental Cleanup Programs
in the Departments of Defense and Energy

before the
Subcommittee on Military Procurement
and the
Subcommittee on Military Readiness
Committee on National Security
U.S. House of Representatives

March 21, 1996

NOTICE

This statement is not available for public release until it is delivered at 2:00 p.m. (EST), Thursday, March 21, 1996.

CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

I am pleased to appear before these Subcommittees today to discuss environmental cleanup programs in the Departments of Defense (DoD) and Energy (DOE). The Congressional Budget Office (CBO) has in the past provided the Congress with assessments of environmental issues in DoD and DOE. In both agencies, environmental programs involve more than simply cleaning up waste that resulted from past actions. This testimony focuses on their cleanup activities. Before I discuss our findings, however, I need to note briefly some of the differences in the ways DoD and DOE structure their environmental activities.

The Department of Defense manages a variety of environmental programs, including the Defense Environmental Restoration Program, Environmental Compliance and Protection, Conservation, and Pollution Prevention. However, this testimony addresses only those DoD programs relating to investigating and cleaning up contaminated sites on current DoD facilities and on property formerly owned by the department.

Alternatively, although the responsibilities and activities included in DOE's Environmental Management (EM) program include environmental cleanup, they are broader and more varied than those that fall within the purview of DoD's cleanup program. Under the auspices of the EM program, DOE manages, stores, and treats huge quantities of hazardous and frequently radioactive wastes, maintains and guards large numbers of facilities that are no longer needed to produce nuclear weapons but

are awaiting decontamination, and in some cases is responsible for support functions, such as maintaining roads and utilities, at entire installations.

In March 1995, CBO testified before the House National Security Committee on the findings of our January 1995 study of DoD's environmental cleanup program. That testimony outlined three major themes that we believe still characterize DoD's cleanup program and pertain to DOE's environmental management program as well. First, the scope of these cleanup programs is enormous and continues to expand. Second, though both departments have made considerable progress in carrying out various elements of their programs, relatively little permanent cleanup of contamination has been completed. Finally, based on trends in historical costs and cost estimates, we believe that both DoD's and DOE's estimates of the total cost of their cleanup programs are still uncertain and could exhibit further growth. Of course, the eventual costs are very difficult to estimate for a host of reasons, particularly since they could depend greatly on how the Congress addresses important policy questions either through legislation or through funding levels.

Budgetary trends now suggest a fourth major theme. Just as the Department of Defense and the Department of Energy begin major efforts to actually clean up--as opposed to study--contaminated properties, funding for environmental cleanup has been decreasing and, according to departmental plans, will continue to do so in the near term. Unless major policy changes or technological breakthroughs occur, or

significant management efficiencies are realized, neither department is likely to be able to meet a number of cleanup schedules negotiated with local authorities within the shrinking budgets forecast for the future.

Adjustments to cleanup programs have already been made in the past because of fiscal constraints. Additional adjustments will probably be needed in the future to ensure that the nation's most pressing environmental cleanup needs are met within these increasingly constrained budgets.

THE SCOPE OF ENVIRONMENTAL PROGRAMS

Overall, the scope of DoD's and DOE's cleanup task remains enormous and continues to increase in size. DoD's most recent report on its cleanup effort states that at the end of fiscal year 1994, investigation or cleanup of 11,785 contaminated sites was under way or pending. That total is 11 percent higher than the number of active sites reported by the department at the end of fiscal year 1993. DoD's most badly contaminated sites, those on or proposed for the National Priorities List, also continue to grow in number--from 107 at the end of fiscal year 1993 to 122 at the end of fiscal year 1994. In addition, the number of contaminated sites requiring cleanup at formerly used defense sites (FUDS)--for which DoD is responsible for cleanup--

continues to increase. The number of FUDS requiring cleanup rose from 2,815 to 3,473 between 1993 and 1994--an increase of more than 23 percent.

New cleanup sites are added to DoD's program each year as a result of continuing investigations, including assessments of facilities to determine if requirements under the Resource Conservation and Recovery Act (RCRA) are being met and environmental surveys of closing bases to ensure that all contaminated sites have been identified. In addition, the cases of some contaminated sites previously determined by DoD to require no further action have been reopened, since regulatory authorities have not always concurred with DoD's determination and require additional study or cleanup.

The scope of DOE's cleanup requirements is also enormous. The department has identified some 10,500 individual sites with the potential for releasing hazardous material into the environment. Moreover, DOE's cleanup program--like DoD's--has been growing. The number of surplus buildings that DOE's Environmental Management office has accepted for cleanup, for example, has grown from 409 in 1989 to more than 1,200 today. DOE's cleanup problem will continue to grow for at least 10 years, as more of the department's facilities are taken out of production and transferred to the EM program for cleanup and disposal. EM expects to receive another 1,000 contaminated surplus buildings by the year 2000; eventually, the total number of such buildings could surpass 3,500.

EXTENT OF ACTUAL CLEANUP WORK

Even though DoD and DOE have accomplished a great deal of important work in locating, characterizing, and limiting the spread of contamination, neither department has completed very much of the permanent cleanup that needs to be done. At the end of fiscal year 1994, for example, DoD reported that it had completed cleanup of only 810 sites, leaving some 11,785 contaminated sites that it has determined will require further cleanup actions. Significantly, the department has yet to finish cleaning up any of its most contaminated sites--those on the National Priorities List--to justify removing them from the list. In addition, DoD has completed work on only about 265 FUDS, leaving about 3,500 sites that it has determined will require action.

Those figures are not intended to undercut the significance of the work that DoD has completed thus far. The department has determined that no further action is required on 9,640 out of 21,425 sites that it initially identified as being potentially contaminated. Of course, those "completed actions" reflect DoD's determination that no further investigation or cleanup work was required---a finding that regulatory authorities have disputed on occasion. Nevertheless, in DoD's view, almost half of the population of potentially contaminated sites in its inventory have been taken care of. Less than 10 percent of those sites, however, required any cleanup action. In addition, DoD has finished about 1,400 important interim cleanup actions needed to

stem the spread of contamination before permanent cleanup operations can be undertaken.

Other information on funding and performance indicates that DoD's cleanup work is accelerating. Beginning in fiscal year 1994, for example, DoD began to spend more on actual cleanup measures than on investigating and characterizing contamination. The department projects that the proportion of spending on cleanup versus investigation will continue to grow. The growing number of completed cleanup actions--DoD finished cleaning up 237 sites in 1994 compared with 155 sites in 1993--reflects the increased spending on cleanup.

Like DoD's, DOE's record of actual cleanup is modest. For administrative purposes, the EM program has grouped its thousands of sites into about 850 subprojects. Only about one-third of those sites have been fully characterized--the first major step in the lengthy process of environmental restoration. Of those fully characterized, only about half--or 17 percent of the total--have been cleaned up or deemed to require no further action. Thus, only 142 subprojects have been eliminated from DOE's list requiring further action. The bulk of DOE's cleanup activity remains ahead of it.

COSTS OF CLEANUP AND ENVIRONMENTAL MANAGEMENT

The third major theme CBO addressed last year concerns the increasing costs of environmental cleanup. We are concerned that DoD and DOE may still not know the full extent of what it will cost to complete their cleanup programs. It should be emphasized, however, that policy and funding decisions made by the Congress, the two departments, and other concerned parties such as the Environmental Protection Agency and state governments could have a major effect on what actual costs might be. Any estimate of total program cost will be subject to the vicissitudes of legislative and regulatory actions affecting such important variables as setting the level of cleanup standards and developing and applying new technologies. Legislative or regulatory relief that lowers cleanup standards could cut the cost of the program significantly. New remediation technologies could also cut costs dramatically.

Since 1984, DoD has spent $18.4 billion on the Defense Environmental Restoration Program, on cleaning up military bases being closed under the decisions of the Base Realignment and Closure Commission (BRAC), and on developing new cleanup technologies.[1] Based on figures from DoD's March 1995 estimate of the cost of completing the cleanup program, beginning in 1997 it could cost about $23 billion

1. Unless otherwise indicated, all costs in this testimony are in 1997 dollars.

to finish the cleanup. Yet DoD has completed only a small fraction of the cleanup work needed to be done. It is highly improbable, given the cost of the program to date and the amount of cleanup remaining, that DoD will be able to complete the program within that projected cost.

As DoD enters the more expensive phase of its cleanup work, however, funding for cleanup is actually decreasing. Funding for the Defense Environmental Restoration account and for BRAC cleanup is down some 30 percent---from about $2.9 billion in 1994 to about $2 billion in 1996. DoD's request for 1997 is about $2 billion, or roughly the same level of funding the Congress authorized last year.

In addition, past DoD estimates of the cost of cleanup have typically underestimated the cost of the program. Ten years ago, the department estimated that the total cost of the cleanup program would be between $15 billion and $19 billion. CBO estimates, using DoD's figures of March 1995, that the department now projects the total cost of the cleanup program to exceed $40 billion. DoD officials have indicated that even that estimate does not include some of the costs of management, operations, and support of long-term cleanup actions.

DoD's cost estimates for cleanup at the installation level are also subject to considerable uncertainty. For example, estimates of the cost of cleaning up bases scheduled to be closed by BRAC have increased considerably. In 1993, the DoD

Inspector General found that the median cost of cleanup for 49 bases being closed exceeded baseline estimates by about 50 percent.

Perhaps of most concern in the long run, reduced current funding for environmental research and development could mean higher future costs of remediation. The development and use of new cleanup technologies offers the prospect of reducing cleanup costs for a wide variety of contaminants below current costs. If those emerging technologies are not funded, DoD will have to pay the much higher costs of using today's technologies. Although funding for research and development of new technologies for cleanup increased dramatically between 1991 and 1994, it has fallen by about 50 percent since then.

In summary, assuming that current legislative and regulatory policies governing cleanup pertain, we believe that DoD's current estimate may still understate the probable cost of the cleanup program because it does not include important long-term costs, adequately reflect rising costs of cleanup being experienced at its installations, or consider the expanding scope of work to be done. Moreover, hopes to control costs in the future cannot be sustained in the face of shrinking funding for new technologies that could reduce the costs of cleanup.

The history of DOE's cost estimates for its cleanup program also suggests that future costs may be higher than that department now estimates. In March 1995, DOE

released its latest estimate of how much completing the cleanup of its weapons complex would cost. The uncertainty surrounding many aspects of its cleanup program resulted in a wide range of estimates--from $180 billion to $520 billion--reflecting differing assumptions about the standards for cleanup. Within that wide range, DOE's cost estimates would vary to a lesser extent depending on assumptions about the productivity of the EM program. DOE's only previous official estimate, published in 1988, was $160 billion, less than half of the most comparable recent estimate of $370 billion.

The significant increase in DOE's estimate was caused, at least in part, by the end of the Cold War and the consequent halt in weapons production at many large DOE facilities. Another contributing factor is the greater appreciation that DOE now has for the extent and nature of contamination at its facilities and the long period of time--several decades--that it will need to complete its cleanup. DOE's base-case estimate of $240 billion and 65 years to complete its cleanup program is based on what it considers to be attainable levels of efficiency and achievable cleanup standards.

Given the many assumptions underlying DOE's recent cost estimates and the extensive period of time remaining before the program is completed, the costs of the program could continue to grow beyond DOE's current base-case estimate. In particular, the department has not included in its latest estimate the costs for cleanup

activities that are not feasible using existing technologies. DOE's estimate also assumes that sites will only have to meet cleanup standards consistent with patterns of reuse (for example, industrial rather than residential use).

Until recently, DOE's cleanup budget also reflected its growing responsibilities and the expanding scope of its program. DOE's annual budgets, expressed in 1997 dollars, have increased from $2 billion in 1989 to about $7 billion in 1996. Now, however, even as the department's cleanup responsibilities expand, its annual budgets are projected to decline in real terms for at least the next several years. Based on DOE's latest plan, the annual EM budget, expressed in 1997 dollars, will shrink from $6.7 billion in 1996 to about $4.1 billion by the turn of the century.

Those diminishing annual resources are projected for a period when the EM program not only will become responsible for more physical structures, but also will continue to be responsible for complying with additional milestones included in the agreements it has negotiated with the federal Environmental Protection Agency and state and local agencies. As with DoD, those conflicting pressures may force DOE to renegotiate some of its agreements to bring them more in line with what the department can accomplish given current fiscal constraints.

In light of those trends toward rising costs and shrinking budgets, DoD and DOE face a severe challenge in meeting the most pressing environmental cleanup needs within a tighter budget. Both departments have already recognized some of the key steps to do so. For example, last year CBO noted the need for DoD to establish funding priorities for its cleanup projects. The department has taken some important steps toward putting that idea into practice. First, it developed the Relative Risk Assessment Model to analyze the relative threat to public health and safety at its contaminated sites. Using that model, DoD has divided its contaminated sites into high-, medium-, and low-risk categories. According to DoD's response to Congressional budget cuts, reductions in funding would reflect the risk category and the cleanup phase of each particular site. Cuts in funding, for example, would be made initially to low- and medium-risk sites in the early investigative stages of the cleanup process. Low- and medium-risk projects in the remedial investigation/feasibility study phase would be cut back next, and so forth.

We believe DoD's approach is an important step in the right direction but could still use improvement. For example, DoD's actions using relative risk assessment and the cleanup phase concern how to cut funding, but they do not govern how the cleanup budget is constructed in the first place. Potential exists to integrate cleanup priorities among the military services as the budget request is being

constructed rather than applying criteria only when funding is being reduced. In addition, it is not clear how DoD weighs the importance of other priority factors such as cleaning up economically usable property on military bases that are closing.

As a second approach to conserving its scarce cleanup resources, DoD is successfully avoiding major near-term cleanup costs from closing military bases by transferring surplus property to other federal agencies or by leasing it. The Comprehensive Environmental Response Compensation and Liability Act (as amended) requires DoD to complete all cleanup actions before it may transfer title to a nonfederal owner. The act, however, also permits DoD to transfer property to another federal agency without completing the cleanup. According to current plans, DoD will retain or transfer to other federal agencies 110,000 out of 190,000 acres on bases being closed by BRAC I and BRAC II. About 55,000 acres are contaminated with unexploded ordnance, which the department will not have to clean up before it transfers that property to another federal agency. The Community Environmental Response Facilitation Act authorizes the department to lease property before completing cleanup. As of August 1994, DoD signed 41 leasing contracts for BRAC properties permitting reuse while it continues with planned cleanup activities. Without the option to lease, DoD would have had to complete cleanup before transferring the property to nonfederal owners for their use.

Although it may make sense to delay cleanup in certain circumstances and to avoid unnecessary costs, balancing cleanup requirements with a constrained budget will ultimately require the use of cost-effective technology. Initial research indicates that new technologies can produce major savings in long-term cleanup costs. Experimental projects, for example, suggest that the cost of cleaning up metals in contaminated groundwater could be cut from as much as $40 to as little as 10 cents per thousand gallons. New technology could cut the cost of cleaning up unexploded ordnance by as much as a third. After increases in research and development spending were approved in 1993 and 1994, funding for research for new cleanup technology was cut drastically during the past two years. CBO continues to believe that in the long run, new cleanup technologies represent the best hope of addressing environmental problems within available budgets.

DOE's ability to meet priority cleanup requirements within increasingly constrained budgets could also be enhanced by delaying lower-priority projects that do not endanger public health or safety and by investing in new technologies. DOE estimates that new technologies could reduce its total cleanup cost over the next 65 years significantly throughout the entire nuclear weapons complex. Nevertheless, DOE has invested on average less than 7 percent of its EM budget in developing new technologies. By investing additional resources to devise more efficient methods for cleaning up its contaminated sites, DOE could save critical resources needed to finance its cleanup program over the long term.

Another way to reduce program costs may be to increase productivity through contract reform, privatization, and streamlining. DOE feels that it can reduce the total cost to complete its cleanup program from $370 billion to $240 billion through such increases in its productivity. Indeed, DOE estimates that unless it significantly enhances the productivity of its EM program, the costs to execute its cleanup program will exceed EM's projected budgets over the next six years alone by $18 billion. In fact, the 20 percent increase in productivity that DOE expects to achieve in the EM program will still leave an $8 billion gap--in 1997 dollars--between projected costs and budgets from 1996 to 2000. To bridge that gap, DOE is hoping to increase its productivity even more, a hope that may or may not be realistic.

The department could also achieve effective long-term cost reductions by realizing efficiencies in its cleanup program. It could do so by reducing those costs in the EM program that do not contribute directly to cleanup. Costs in that category--which account for about 40 percent of EM's projected total cost--include those for program management, sitewide infrastructure, and support functions such as financial offices, logistics support, and public information services. The Congress, in reports accompanying its defense authorization bills for 1995 and 1996, has encouraged DOE to initiate management reforms in order to reduce those costs in the EM program.

Legislative relief from restrictive clauses contained in the Superfund law--the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)--could reduce future cleanup costs for both DoD and DOE by establishing more lenient environmental cleanup standards. For example, CERCLA requires applying the most stringent cleanup standard when federal and local jurisdictions disagree over cleanup requirements. Revising the law to permit adopting less stringent standards under such circumstances could also reduce cleanup costs significantly. In addition, CERCLA favors selecting permanent, unlimited remedies to meet the highest cleanup standards. Revising the law to permit cleanup measures designed to meet standards appropriate to the most probable reuse of a property could save significant cleanup costs. DOE, for example, has estimated that the requirement to clean up its facilities for unlimited future use roughly doubles the cost of the cleanup program. Although less stringent standards could help improve the future affordability of DoD's and DOE's cleanup programs, extreme care should be taken to ensure that public health and safety remain guaranteed under less demanding standards and procedures.

CONCLUSION

Both DoD and DOE face serious difficulty in carrying out their plans for environmental cleanup. Both departments have made progress in identifying and analyzing their environmental problems, and both have begun actual cleanup at many of their contaminated sites. But the scope of cleanup work has continued to grow, and the cost to complete their cleanup programs may eventually exceed the best current estimates that the two departments have made.

To use scarce and shrinking resources most efficiently, both DoD and DOE might consider measures such as reducing administrative overhead, developing the most promising cleanup technologies, and better establishing priorities for their cleanup activities. Both departments would benefit from a measure of legislative relief that permitted them to clean up facilities only to the extent required by future use. Actions such as those would increase the prospect that needed cleanup measures could be completed with the resources likely to be available.

Mr. HUNTER. Thank you, Ms. Williams.

Mr. Rezendes, you have the opportunity to win the door prize.

STATEMENT OF VICTOR S. REZENDES, DIRECTOR, ENERGY RESOURCES AND SCIENCE ISSUES, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION

Mr. REZENDES. I think I can accept that challenge.

I want to talk briefly about the cleanup at the Department of Energy, and will make four basic points. I want to echo something that has already been said, particularly on the standards and legislative requirements that are used to clean up these facilities, and I want to highlight one that is in my testimony on the Superfund, which is the unrestricted use. As you know, that drives the program in terms of the notion that these facilities will be cleaned up so anything can happen there.

Obviously, if we had a more systematic way of looking at what the land is actually going to be used for and used more realistic assumptions on the land use, we could save probably anywhere from $200 to $600 million a year.

And while we are talking about saving money, the second point I want to mention is that we also highlight in our testimony a program called removal program, removal actions, which basically is a way to streamline the planning in terms of the cleanup that needs to be done. Sometimes it is just munitions underground that need to be cleaned up. You do not need a lot of extensive analysis or environmental impacts to decide that you are going to clean that up and move them out, and I think some of the progress that DOE has shown—and we are doing the job for this committee, and the report will come out soon that shows there are significant savings if we use that throughout the weapons complex.

No. 3, privatization. There is a lot of concern and interest in privatizing at DOE, particularly the cleanup. I would emphasize that the Department of Energy to a great extent today is also privatized; 85 percent of its money goes to contractors. But as we go down the road in terms of shifting the risk and the liability to the contractors to make them more responsive to the Federal needs, I think there are a couple of issues that this committee needs to be alerted to.

One, is the total life-cycle cost of doing this cheaper than if the Federal Government were to do it itself; and two, what about the liability that is shifting from the Federal Government to the contractor—how big is that going to be? There is a whole notion of the risk premium a private firm would have to accept in terms of taking on some of this risk, and is that premium going to be greater than the efficiencies we would gain by having them come on board.

And the final point on privatization is who is going to monitor the environmental health and safety issues that are going on there. We are dealing with nuclear materials that need to be regulated by a whole host of Federal agencies.

My last point on DOE relates to the carryover balances. There are $108 billion in uncosted obligations from the last fiscal year. Although the Department uses some of these balances to cut costs in the current year, it really does not have a good way of assuring

itself or this committee that they have the absolute minimum they need to carry forward from 1 year to the other.

Let me shift to DOD and make two quick points there. The first is that they have begun categorizing their cleanups and doing some relative risk. Seventy percent of the 10,000 facilities have already been assessed. Half of those, however, have been classified as high-risk. Obviously, the more you have high risk, the less you can differentiate, and the more difficult it becomes for this committee and others to set priorities if everything is a high priority.

The last point on DOE relates to the lack of sufficient data to manage the environmental compliance programs. In essence, what we have here is that although there is a good way for identifying projects to be funded, there is not the greater degree of assurance that the projects are in fact getting the funds that were targeted to them or monitoring the extent of those cleanups.

The Department has a working group to address those. We are looking at that, and we have some concerns about how they are lumping some of the categorizations, particularly those in the high-end and the high-risk categories.

Do I win a prize?

[The prepared statement of Mr. Rezendes follows:]

United States General Accounting Office

GAO

Testimony

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ENVIRONMENTAL PROTECTION

Issues Facing the Energy and Defense Environmental Management Programs

Statement of Victor S. Rezendes,
Director, Energy, Resources and Science Issues,
Resources, Community, and Economic
Development Division



GAO/T-RCED/NSIAD-96-127

Messrs. Chairmen and Members of the Subcommittees:

We are pleased to participate in this hearing on the major environmental issues facing the Departments of Energy and Defense. At the Department of Energy (DOE), a major focus in the last few years has been on improving the cost-effectiveness of the nuclear weapons complex cleanup. Similarly, at the Department of Defense (DOD) cleanup costs have been an issue, but the cleanup effort is part of a larger effort to control the cost of environmental compliance now, while minimizing contamination and associated costs in the future. At DOD, environmental compliance-related activities have overtaken cleanup as the major annual cost.

As our work over the last several years has shown, both departments face monumental tasks in addressing the legacy of environmental problems created by many decades of nuclear weapons production and military operations. Although DOE and DOD have made some progress, major obstacles remain, and the two departments estimate that the total cost of cleaning up their facilities could run as much as $389 billion--about $39 billion for DOD and as much as $350 billion for DOE.

Over the last several years, we have reviewed many aspects of each department's cleanup effort. With regard to DOE's cleanup effort, our testimony today will address (1) how administration of basic laws governing cleanup of the weapons complex affect costs, (2) suggested ways to reduce DOE's costs, (3) issues the Congress should consider regarding DOE's initiative to privatize portions of its cleanup effort, and (4) how excess carryover balances could be used to fund DOE's cleanup effort. With respect to DOD's cleanup program, we will address (1) DOD's use of relative risk as a major factor in ranking individual cleanup sites and (2) how DOD prioritizes, plans, and budgets for its environmental compliance program.

Concerning the DOE cleanup, in summary, we have found the following:

-- Changes in how the basic laws governing the cleanup of the weapons complex are administered can potentially reduce cleanup costs. For example, DOE has usually assumed that all of its facilities will be cleaned up so that their use would be unrestricted; however, many facilities are so contaminated that unrestricted use is unlikely. In our August 1994 report on the impact of incorporating land use planning decisions into cleanup decision-making, we found that incorporating more realistic land use assumptions into the selection process for a cleanup remedy under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), could result in significant cost savings--from $200 million to $600 million annually, according to DOE.[1]

-- In July 1995, we reported (1) that while removing radioactive and hazardous materials through a process known as deactivation can save money--almost $458 million for the projects we could evaluate--DOE did not have a consistent method for determining the relative savings among projects and (2) that without a more consistent method, DOE could select the wrong priority for projects it intends to deactivate.[2] More recently, we have been examining how DOE could speed the environmental restoration of its sites. While our work is not complete, we have found that significant potential exists to use a less restrictive process to plan the remediation of sites, at a significant cost savings.

-- As part of its initiatives to reduce the cost of the cleanup, DOE is now proposing to privatize portions of the cleanup, most notably, the

[1]Nuclear Cleanup: Completion of Standards and Effectiveness of Land Use Planning Are Uncertain (GAO/RCED-94-144, Aug. 26, 1994).

[2]Department of Energy: Savings From Deactivating Facilities Can Be Better Estimated (GAO/RCED-95-183, July 7, 1995).

vitrification of high-level waste in the tanks at its Hanford facility. While we have not evaluated DOE's privatization proposal, we have conducted numerous reviews of DOE's management of the cleanup and of the Hanford tank farms. Key among the major issues that the Congress should consider in evaluating DOE's privatization proposal are (1) has DOE demonstrated that privatizing the cleanup of the tank farms will reduce the overall life cycle costs of the program to the taxpayer, (2) has DOE adequately defined what liability the government should assume and what liability should be borne by the private firm, and (3) has DOE determined who will oversee the private firm for compliance with environmental, nuclear, and health and safety regulations?

-- The Department's excess carryover balances could be used to help fund its cleanup efforts.[3] At the end of fiscal year 1995, DOE's environmental programs had almost $1.8 billion in these balances. Through prior and ongoing work, we have found that in formulating a budget request, DOE officials do not use a standard, effective approach for identifying excess carryover balances that could be used to reduce DOE's budget request. Instead, DOE makes broad estimates of the potentially excess balances in its programs. As a result, DOE cannot be sure it has reduced its balances to the minimum needed to operate its programs.

Turning to DOD, in summary, our work shows the following:

-- DOD has begun efforts to categorize cleanups within and among facilities based on their relative risk. Our past and ongoing work for this Committee indicates that these efforts are a step in the right direction. About 70 percent of the estimated 10,000 DOD sites believed to need cleanup have

[3]Carryover balances consist of uncosted obligations and unobligated balances.

been evaluated, but over half of all evaluated sites still are considered high priority without any further ranking within that group. Consequently, some lesser priority sites may exist within the broader high relative risk category. Finally, efforts to rank cleanup sites across geographic and organizational boundaries are still in their infancy.

-- DOD does not have sufficient data to manage its environmental compliance programs, with far less oversight data for compliance activities than for cleanup activities. For example, even though the Congress receives annual reports with installation level data for planned and actual cleanup expenditures, DOD's process for compliance data cannot now provide a similar degree of detail. In 1994, the Office of the Secretary of Defense (OSD) established a working group to develop procedures to ensure that necessary data, such as amounts budgeted and spent, can be obtained and reported in detail. It is too soon to fully evaluate DOD's plans to improve oversight of the compliance program, but we are concerned some initial changes may make it harder to distinguish among DOD's highest priorities.

BACKGROUND

Through its Environmental Management (EM) program, DOE is responsible for environmental restoration, waste management, and facility transition and management at 15 major contaminated facilities and more than 100 small facilities in 34 states and territories. These facilities encompass a wide range of environmental problems, including more than 7,000 locations where radioactive or hazardous materials were released into the environment; almost 200 tanks that contain high-level radioactive waste from nuclear weapons production, some of which have leaked or could explode; and 7,000 production facilities that are now idled and in need of deactivation, decontamination, and decommissioning.

For decades, DOD has operated industrial facilities that generated, stored, or disposed of hazardous wastes. The types of hazardous wastes and contaminants that require cleanup at the majority of DOD's installations are also found at most private industrial operations. The primary contaminants are petroleum-related products such as fuels, solvents, corrosives, and paint strippers and thinners. Contamination has usually resulted from improper disposal, leaks, or spills. Some unique military substances, such as nerve agents and unexploded ordnance, are also found at DOD's installations.

In 1984, the Congress established the Defense Environmental Restoration Program (DERP) to evaluate and clean up contamination resulting from DOD's past activities. DERP's primary goal is to protect human health and the environment from risks posed by contaminated sites. Since 1984, DOD has identified approximately 20,000 potentially contaminated sites (10,000 of which it believes contaminated) at over 1,700 installations, and approximately 3,200 potentially contaminated sites at about 2,200 formerly used DOD installations in the United States.[4]

In cleaning up its sites, DOD and DOE must comply with two major federal environmental laws--the Resource Conservation and Recovery Act of 1976, as amended (RCRA), and CERCLA--as well as with state environmental laws and regulations. RCRA regulates the management of facilities that treat, store, and dispose of hazardous wastes and the cleanup of hazardous wastes released from such facilities. CERCLA governs the cleanup of inactive waste sites--that is, sites where disposal is no longer occurring. The Environmental Protection Agency (EPA) is responsible for administering both acts, but EPA may authorize state agencies to

[4]DOD had previously used a figure of 8,000 potential sites because that was the number of formerly used defense sites. That number was not based on any indications of contamination, and DOD has revised it based on preliminary assessments.

implement all or part of its RCRA responsibility. To implement its responsibilities under these acts, DOE has entered into interagency compliance agreements with EPA and the states. These agreements identify activities--generally called milestones--and schedules for achieving compliance, many of which are legally binding and enforceable. Both departments are also involved in complying with other laws such as the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, the National Environmental Policy Act, and the Federal Facility Compliance Act.

Cleaning up these department's sites is an enormous task, that, in the case of DOE, is likely to span multiple generations. Over the last several years, the total estimated cost of the DOE cleanup has risen from about $100 billion in 1988 to $230 billion, with a high end estimate of $350 billion. DOD currently estimates its total costs, from its inception, at almost $39 billion.

MANY ISSUES COULD AFFECT THE COST OF CLEANING UP THE WEAPONS COMPLEX

The huge cost of cleaning up the weapons complex has been a matter of growing concern, especially to the Subcommittee on Military Procurement. We have reported repeatedly on many issues that have and will affect the cost of the cleanup, including the need for a national, risk-based strategy to set realistic priorities; the need for DOE to more effectively address the complex technical problems that it faces in cleaning up its most vexing problems, such as the high-level tank wastes at Hanford; and the need for effective contractor management.[5] At your request, we would like to address several issues of specific interest to the Subcommittee. These

[5]Nuclear Weapons Complex: Establishing a National Risk-Based Strategy for Cleanup (GAO/T-RCED-95-120, Mar. 6, 1996), Nuclear Waste: Hanford Tank Waste Program Needs Cost, Schedule, and Management Changes (GAO/RCED-93-99, Mar. 8, 1993), and Department of Energy: National Priorities Needed for Meeting Environmental Agreements (GAO/RCED-95-1, Mar. 3, 1995).

issues include how legislation can affect cleanup costs, ways to reduce cleanup costs, DOE's privatization initiative, and how excess carryover balances could be used to fund DOE's cleanup efforts.

How Legislation Is Administered Can Affect Cleanup Costs

Our August 1994 report on the impact of incorporating land use planning decisions into cleanup decision making stated that incorporating more realistic land use assumptions into the selection process for a cleanup remedy under CERCLA could result in significant cost savings--from $200 million to $600 million annually, according to DOE's Assistant Secretary for EM. Our report noted that DOE and EPA had been assuming that all of DOE's facilities would be cleaned up so that they could be used for unrestricted use. Consequently, the most stringent environmental requirements were imposed on every cleanup project. However, we found that because CERCLA does not specifically address using alternative land uses, such as industrial parks, EPA's policy had been to assume residential use in its decisions--potentially the most costly cleanup requirement.

Since our report was issued, DOE has begun to work with local stakeholder groups and develop land use plans for its sites. Additionally, in May 1995, EPA issued a directive indicating that cleanup decision-making should reflect "reasonably anticipated future land use" and that this could lead to more expedited, cost-effective cleanups. The practical effect of this directive is not clear. For example, CERCLA states that cleanup alternatives that permanently treat contaminants are preferred. Since some land uses may rely on institutional controls, such as deed restrictions and fencing, to prevent access to the contaminated area, it is not clear whether EPA will be able to consider these types of controls a permanent solution. As we noted in our report, if the Congress agrees that land use planning should be used in cleanup decisions, it could amend CERCLA to provide EPA with more specific direction.

DOE's facilities are subject to the cleanup actions and procedures specified by EPA under CERCLA as well as to RCRA-related requirements for corrective action established by EPA or a state regulatory agency. The need to coordinate the requirements of RCRA and CERCLA has created the potential for delays and increased costs. For example, our December 1994 report stated that officials at DOE's Savannah River Site were preparing additional documents to meet CERCLA's requirements, at a cost of about $33,000, for a facility that had been cleaned up and closed in 1990 under RCRA.[6] DOE officials acknowledged that DOE would not be conducting any additional cleanup or disclosing any new information in preparing the required documents. Such problems could continue, since much cleanup work remains to be done, and additional DOE facilities have come under CERCLA regulation.

DOE and EPA have recognized the potential impact of this duplication. DOE has developed an approach where it attempts to avoid duplication by specifying a lead regulator (either EPA or the state) for each cleanup project. Similarly, EPA is developing guidance on designating a lead regulator which it expects to issue in the summer of 1996. While this approach might solve the problem, it will depend on the cooperation of DOE and the EPA regions and states that oversee DOE's facilities. Absent such cooperation, problems with duplication between RCRA and CERCLA could continue to affect the cost of the cleanup.

Specific Opportunities Exist
to Reduce Cleanup Costs

In July 1995, we issued a report to the Subcommittee on Military Procurement examining DOE's approach for estimating the savings it could achieve through the

[6]Nuclear Cleanup: Difficulties in Coordinating Activities Under Two Environmental Laws (GAO/RCED-95-66, Dec. 22, 1994).

deactivation of surplus facilities.[7] We found that deactivation--removing radioactive and hazardous materials from unused buildings--can save money. In estimating the net savings that DOE could realize for the 11 projects for which sufficient data were available for analysis, we found that the projects could yield a net savings of $458 million over their expected life. Despite the significant savings that some deactivation projects can generate, DOE did not have a consistent method for determining the relative savings among projects, and without a more consistent method, DOE could select the wrong priority for projects it intends to deactivate. We recommended that DOE develop a more reliable method for estimating savings and use this method to set priorities for deactivation projects. DOE agreed with our recommendations and said it would develop guidance on estimating savings and use the guidance to determine facility deactivation priorities.

Currently, we are examining for you how DOE could use a process known as "removal actions" to speed the environmental restoration of its sites. A removal action shortens or eliminates some of the planning steps, such as the remedial investigation and feasibility study, normally used for full-scale remedial actions under CERCLA. Although removal actions are sometimes used to respond to emergencies or other urgent circumstances, they can also be used in more routine situations at federal facilities. Removal actions have been used for a variety of cleanups, including treating ground and surface water and excavating contaminated soil. While our work is not complete, significant potential exists to use this less-restrictive process at many DOE sites at a significant cost savings.

[7]Department of Energy: Savings From Deactivating Facilities Can Be Better Estimated (GAO/RCED-95-183, July 7, 1995).

Many Challenges Face DOE With
Respect to Privatization

As part of its initiatives to reduce the cost of the cleanup, DOE is now proposing to privatize portions of the cleanup, most notably, the vitrification of the high-level waste in the tanks at its Hanford facility. Rather than constructing and operating its own facilities to treat the tank waste, DOE is considering having a company or a consortium of companies finance, design, build, and operate pretreatment and treatment facilities and deliver the finished product--in this case, vitrified waste encased in stainless steel containers--to DOE for a fee. DOE expects this approach to save billions of dollars because the potential for innovation in the marketplace could lead to greater efficiencies and improved performance. A request for proposals to design the first phase of this effort was issued in February 1996, and DOE expects to award competing contracts in August 1996.

It is important to recognize that for all practical purposes, DOE's activities are already privatized. Specifically, DOE primarily relies on management and operating contractors to conduct its programs at its major sites. Under this concept, the government assumes most of the risk for the operations, while the contractor is paid on a cost-plus-award-fee basis. What sets DOE's privatization initiative apart from its traditional approach is DOE's attempt to shift responsibility for financing and much of the risk onto the private contractor.

Although we have not evaluated DOE's privatization initiative, we have conducted numerous reviews of DOE's management of the cleanup and of the Hanford tank farms. You asked us to identify issues that the Congress should consider in evaluating DOE's privatization proposal. While there are many issues to consider, we believe three are the most critical:

-- Has DOE demonstrated that privatizing the cleanup of the tank farms will reduce the overall life cycle costs to the taxpayer? As our work has demonstrated, considerable uncertainty exists about the contents of the tanks and the effectiveness of many of the technologies needed to be successful.[8] It is possible that the "risk premium" demanded by a private entity to cover these uncertainties could exceed the efficiency gains that might be realized by privatization.

-- Has DOE adequately defined what liability the government should assume and what liability should be borne by the private firms? According to our past work, DOE has not used a consistent approach to indemnify its cleanup contractors, and some contractors have received more favorable treatment than others.[9] Again, given the substantial risk involved, the issue of indemnification bears close scrutiny to ensure that the government does not assume so much of the risk that the effort becomes privatized in name only.

-- Has DOE determined who will oversee the private firm for compliance with environmental, nuclear, and health and safety regulations? The facilities to treat Hanford's high level waste will involve hazardous, radioactive materials potentially dangerous to workers and the public. This will require the coordination and cooperation of many agencies, including EPA, the Nuclear Regulatory Commission, the state of Washington, and the Defense Nuclear Facilities Safety Board.

[8]Nuclear Waste: Management and Technical Problems Continue to Delay Characterizing Hanford's Tank Waste (GAO/RCED-96-56, Jan. 26, 1996).

[9]DOE Management: Consistent Cleanup Indemnification Policy Is Needed (GAO/RCED-93-167, July 12, 1993).

DOE's Large Carryover Balances
Continue to Be an Issue

In addition to making the cleanup more cost effective, an additional way to provide funds for DOE's cleanup is through the use of excess carryover balances of uncosted obligations and unobligated balances. Over the last several years, the Congress has reduced DOE's request for new obligational authority and recommended that DOE use balances remaining from prior years' obligational authority that are carried over into the new fiscal year. DOE's EM program had about $1.8 billion in such carryover balances at the end of fiscal year 1996. While DOE needs some carryover balances to pay for program commitments made in prior years that have not been completed, the Department's large and persistent carryover balances have raised concern in the Congress, and especially in the Subcommittee on Military Procurement, about whether DOE's carryover balances exceed the minimum needed to support its programs.

Over the last several years, we have consistently found that DOE had hundreds of millions of dollars in carryover balances that were not needed for their identified purpose, were not tied to specific needs, or were in excess of expected needs.[10] For example, last year, we identified $46.2 million reserved for 15 environmental management projects at the Savannah River Site that were no longer needed because of cost underruns, reductions in the projects' scope, or cancellation of projects. These persistent findings led us to review whether DOE had an effective approach for identifying carryover balances that exceed its program requirements and may be available to reduce its budget request and whether DOE's process could be improved.

[10]DOE's Fiscal Year 1994 Uncosted Balances (GAO/RCED-95-263R, Aug. 7, 1995), Energy Management: Use of Uncosted Balances to Meet Budget Needs (GAO/RCED-94-232FS, June 6, 1994), and Energy Management: Additional Uncosted Balances Could Be Used to Meet Future Budget Needs (GAO/RCED-94-26, Oct. 26, 1993).

We found that in formulating a budget request, DOE officials do not use a standard, effective approach for identifying excess carryover balances that could be used to reduce DOE's budget request. Instead, DOE makes broad estimates of the potentially excess balances in its programs. For example, EM proposed the use of $300 million in carryover balances for its fiscal year 1996 budget. According to EM officials, that amount was not based on any detailed analysis, and only after it was proposed did the program identify where the available balances might be found. As a result, DOE cannot be sure it has reduced its balances to the minimum needed to operate its programs. Our forthcoming report will make recommendations on how DOE can better estimate the carryover balances it needs to operate its programs and make available additional resources to pay for its efforts.

OPPORTUNITIES EXIST TO IMPROVE MANAGEMENT OF DOD'S CLEANUP AND COMPLIANCE PROGRAMS

Addressing DOD's environmental problems also represents a significant undertaking. Cleanup and compliance program costs make up 86 percent (including Base Realignment and Closure [BRAC] costs) of DOD's total $5 billion fiscal year 1996 budget estimate for its overall environmental security program. Cleanup costs, excluding BRAC, total $1.6 billion for fiscal year 1996, and compliance costs, excluding BRAC, total $2.2 billion.[11] Consequently, ensuring that these programs are well managed has been an ongoing concern of the National Security Committee and its subcommittees.

[11]Pollution prevention, conservation, and environmental technology make up the remaining 14 percent of DOD's environmental funding for fiscal year 1996.

Setting Priorities for DOD's Environmental Cleanup

In its 1994 annual report to the Congress, dated March 1995, DOD estimated that the cost of cleaning up all of its currently identified contaminated sites will total $38.9 billion. Such an immense undertaking and limited annual funding require that DOD address the most severely contaminated sites first.

In April 1994, we reported that DOD had not effectively prioritized the cleanup of its contaminated sites and that some sites that were identified as high priority posed less of a risk to human health and the environment than sites that were not on the high-priority list.[12] We reported also that DOD's cleanup had proceeded slowly and that relatively few hazardous waste sites had been cleaned up. Citing congressional concerns and our report, DOD began to implement a risk-based prioritization system.

In May 1994, an inter-military service working group developed procedures to prioritize cleanups on the basis of relative risk. Historically, priorities for cleanup were established at the field level using a variety of methods and factors--often by DOD and regulatory personnel--as part of negotiated legal agreements that included study and cleanup milestones. However, the legal agreements did not always ensure that sites posing the greatest risk to human health and the environment were cleaned up first.

In the summer of 1994, DOD issued guidance to implement the relative risk model to place sites in the DERP into high, medium, and low groups. Assignment to

[12] Environmental Cleanup: Too Many High Priority Sites Impede DOD's Program (GAO/NSIAD-94-133, Apr. 21, 1994).

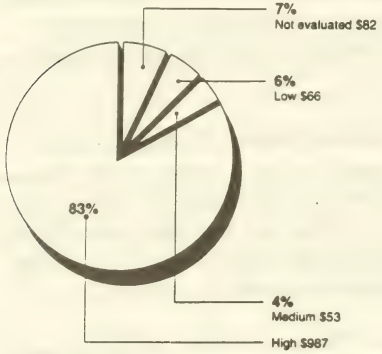
a relative risk group considered (1) site contamination (What chemical concentrations are there?), (2) paths that the materials could travel (Is the contamination moving or will it move?), and (3) potential contacts that the contaminants could have with people, animals, or plants (Are there humans or sensitive environments nearby that could be adversely affected?).

DOD expected to complete relative risk evaluations by July 1995 for the estimated 10,000 sites requiring cleanup. However, as of February 1996, evaluations had been done for 7,450 of the sites. These evaluations were to be used as a primary tool for prioritizing cleanup efforts for the fiscal year 1996 budget cycle and making funding decisions. However, the lack of relative risk evaluations for the remaining sites impedes DOD's ability to prioritize and sequence its cleanup work.

In addition, more than one-half, or about 4,000 of the 7,450 sites have been categorized as high risk. DOD and the military services plan to spend 83 percent of their fiscal year 1996 cleanup funds on sites in the high relative risk category. As shown in figure 1, the remaining 18 percent of the sites are ranked medium, low, or not evaluated. Generally, no further risk distinctions are made among the high risk sites, except for a Navy and Marine Corps effort to prioritize sites in EPA Regions 9 and 10. Not identifying the worst sites among this large number of high risk sites could impede directing scarce environmental resources to those sites posing the greatest risk to human health and the environment.

Figure 1: Fiscal Year 1996 DOD Cleanup Expenditures by Relative Risk Ranking

(Dollars in millions)



Note: Total fiscal year funding of about $1.2 billion was based on a one-time data request from the Army, Navy, Air Force, and the Defense Logistics Agency in February 1996. The total varies somewhat from actual budget data.

Improving DOD's Priority Setting, Planning, and Budgeting for Its Compliance Program

This portion of our testimony addresses our concerns about the current process that DOD uses to set environmental compliance priorities and to provide the funding necessary to meet these priorities. We will also discuss proposed changes in DOD's compliance program that are designed to give DOD management and the Congress more useful information to help them manage and oversee the overall program.

Compliance Priority Setting

We and OSD have noted that DOD's budgeting process does not provide DOD

management or the Congress with the information needed to provide for proper oversight. A DOD initiative to provide the data needed to better manage the program has developed new definitions for EPA classes that DOD used to set priorities for compliance projects. However, the initiative could dilute the highest-priority category by increasing the number of highest-priority projects, and thus significantly reduce management oversight.

DOD's process for compliance requires the services and the Defense Logistics Agency (DLA) to determine environmental requirements and obtain funding for priority needs. DOD's current policy uses an EPA five-category classification system that places the highest priority on those projects at facilities currently out of compliance (Class I) and lesser priority on those not compliance-driven or time sensitive.

In November 1993, we reported that overall environmental compliance funding procedures varied widely among the services.[13] We noted that many military services' compliance-related appropriations requests did not provide detailed project information, impeding DOD's and the Congress's ability to measure costs and progress. Similarly, OSD's Comptroller office stated in July 1994 that DOD's budget reports provide only appropriation-level data that are not sufficient to manage its overall environmental program. The OSD established a working group to develop procedures to ensure that necessary data such as amounts budgeted and spent can be obtained and reported in detail. The military services' internal audit groups have also identified problems with controls over compliance project justifications, fund allocations, and expenditures.

DOD began an environmental quality initiative in 1995 to promote consistency

[13]Environmental Compliance: Guidance Needed in Programming Defense Construction Projects (GAO/NSIAD-94-22, Nov. 26, 1993).

in compliance definitions, categories, and requirements. DOD has identified goals, strategies, budget items, and measures of merit for three of its environmental quality pillars: pollution prevention, conservation, and compliance. DOD developed new definitions for four of the five EPA classes, but it has not provided specific guidance to the military services.

We agree with DOD's general approach, but have concerns that the class definitions in DOD's plan (1) are a significant departure from DOD's past definitions, (2) do not conform to EPA's definitions, and (3) may expand the number of projects that qualify for funding under compliance Class I, without being able to distinguish among different types, as shown in the following examples:

-- While EPA explicitly limits Class I to facilities currently out of compliance as documented by notices of violation or consent agreements, DOD's new definition adds projects to address requirements where the facility may not be out of compliance for 2 or more years.

-- Although specific procedures have not yet been finalized, DOD's descriptions also indicate that items that EPA includes in Class III (such as inventories, surveys, studies, and assessments) could also be routinely funded as Class I projects.

EPA states that designating a project as, for example, Class III, does not mean the project is necessarily less important than one in Classes I or II. Nonetheless, the inclusion of greater numbers of indistinguishable projects under a redefined Class I could reduce management oversight. In discussing this issue OSD officials said it was not their intent to dilute the compliance priority setting process. Rather, they stated that they wished to permit better recognition of must-fund items within each class. They said it may be too late to define the classes again this year, but that they will act to ensure that the priorities are not diluted in the process.

DOD's Compliance Planning, Review, and Budgeting Processes

Each military service performs environmental self-assessments as a means of helping it determine its environmental needs. For example, the Air Force has its Environmental Compliance and Assessment Management Program, and the Army has its Environmental Compliance Assessment System. The services have set up standards for these self-assessments, which generally require an internal assessment performed by the installation each year together with an external assessment, usually performed by the major command every 3 years. The findings from these assessments may identify regulatory requirements and currently or soon-to-be-out-of compliance conditions and are thus used to help classify projects selected to correct the situation. This helps installations to rank project lists.

Other means that installations use to develop requirements include inspections by EPA and state or local regulators. For example, regulators in California now have what they consider to be a cooperative working relationship with many military installations. An effort commended by regulators in California was a partnership with DOD called the California Military Environmental Coordinating Committee. The Committee brings together California regulatory agencies, EPA, and the military to help solve mutual problems. The regulators believe that the Committee fosters cooperation, coordination, and communication between DOD and the regulator community.

As requirements are developed at the installation level, they are also ranked. As noted previously, while installations prioritize projects according to EPA's classification system, they also add additional rankings to differentiate projects within each classification. Some installations rank projects as high, medium, or low within each class, according to how critical they are to the installations' environmental programs. As an example, all Army Class I-designated projects are,

by definition, of high importance. However, Class II and III projects are further subdivided into high, medium, and low, and this distinction is used to further rank the projects for funding.

Our initial discussions with the military services' headquarters officials indicate that only the Marine Corps prioritizes individual compliance projects among installations so that a service-wide prioritized list of environmental projects is developed. According to a headquarters program manager, the Corps has been prioritizing at its 25 installations for about 5 years. The Marine Corps headquarters officials revise this list as needs change.

Installations develop a ranked unconstrained list of environmental compliance projects and forward these detailed lists to their major command. Major commands review projects, scrub their funding requests, and decide which projects they will support. Major commands forward their approved list to headquarters for further review and approval. The review process varies by service, but generally the review is directed at the major command program level and, except for the Marine Corps and DLA, does not normally include a review of specific projects and priorities. However, the military services' headquarters officials review some projects, like military construction, or they may sample individual projects as shown in the following examples:

-- The Army Environmental Center reviews a sample of projects forwarded by the major commands to the service's headquarters. The Center's goal is to improve future project submittals.

-- DLA reviews all project submittals.

-- The Marine Corps is the only service that takes this process to completion by setting priorities at the major command and headquarters levels.

DOD's policy has placed the highest priority on projects for facilities currently out of compliance and subject to an enforcement action. The next highest priority facilities are those facilities that will be out of compliance soon. The services' environmental headquarters officials told us that they fund, within budget limitations, all EPA Class I and EPA Class II projects that will be out of compliance soon. (As noted previously, such projects and others would be considered Class I under DOD's plans for fiscal year 1998.) In addition, the services also fund recurring "must-fund" activities. These activities may include but not be limited to manpower, fees and permits, sampling and analysis, and hazardous waste disposal.

Most environmental compliance funding is provided to the services through the Operation and Maintenance (O&M) appropriation. However, significant funds are also provided by the Military Construction appropriation, especially for the Navy and Air Force. The Defense Business Operations Fund (DBOF), a nonappropriated account, also provides significant funds for environmental compliance within the Navy and DLA. DLA funds over 98 percent of its compliance activity from DBOF.

OSD and military service headquarters do not currently monitor expenditures for environmental compliance projects. As noted earlier, the services' major commands review proposed installation projects. Our visits to each headquarters office and selected commands and facilities showed little monitoring of specific expenditures except at the installation level. Funds from DOD and the services' O&M accounts, which provide the majority of compliance funding, can be authorized by major commands or installation officials to be used for other purposes--environmental or nonenvironmental.

DOD and the services currently cannot provide overall environmental compliance budget execution data to show that the projects they funded were actually executed. DOD has established a joint working group to develop operating procedures to implement a new budget execution reporting procedure. The extent to

which actual expenditures will be monitored under the new reporting procedures is not clear at this time.

Some headquarters officials believe that installation commanders have adequate incentives to comply with environmental regulation, as they risk being fined and/or jailed for environmental violations discovered on their installations. The services' officials believe that indirect measures, such as the decreasing numbers of notices of violation and enforcement actions, can indicate that installation commanders are using their environmental funding for environmental projects.

Issues Raised by Internal Audit Agencies Regarding Compliance Management Activities

In a May 1995 report,[14] the Army Audit Agency found that environmental managers (1) overestimated the number of must-fund environmental projects; (2) overestimated project costs; and (3) did not keep adequate documentation to support requirements. The Agency reviewed 196 projects classified as must-fund for fiscal year 1993 and found that 51 (27 percent) costing $22 million should not have been classified as must-fund.

In a May 1995 report,[15] the Air Force Audit Agency found that 95 percent of projects funded with fiscal year 1993 environmental compliance moneys were qualified projects. However, major commands and installations authorized some projects that did not qualify for environmental compliance funding. The Agency

[14] U.S. Army Audit Agency, Program Execution for Environmental Projects, Audit report: NR 95-708 (May 17, 1995).

[15] U.S. Air Force Audit Agency, Report of Audit: Management of Environmental Compliance Funds, Project: 94052022 (May 10, 1995).

found 17 projects valued at $3.2 million that did not qualify for environmental compliance funding.

In a January 1996 report,[16] the Navy Audit Service found that Navy and Marine Corps activities based justification for one of six environmental projects proposed for its 1997 Military Construction Program on outdated data. One of the two projects was nonetheless considered valid, while the other was considered partially valid. The Service examined another 43 projects that were not justified as environmental. The Navy Audit Service had similar overall findings in previous reviews of the 1996 and 1995 Military Construction programs.[17]

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Messrs. Chairmen, this concludes our prepared statement. We will be glad to respond to any questions you may have.

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[16] U.S. Naval Audit Service, Military Construction, Navy Projects Proposed for Fiscal Year 1997, Audit Report: 024-96 (Jan. 8, 1996).

[17] U.S. Naval Audit Service, Military Construction, Navy Projects Proposed for Fiscal Year 1996, Audit report: 94-0013 (Nov. 29, 1994) and U.S. Naval Audit Service, Military Construction, Navy Projects Proposed for Fiscal Year 1995, Audit Report: 93-0017 (Dec. 22, 1993).

Mr. HUNTER. Mr. Rezendes, you do win a prize. You are going to receive a flag that was flown over the U.S. Capitol for making the shortest opening statements.

Mr. REZENDES. All right. Thank you very much.

Mr. HUNTER. We will have that for you before you leave today.

I want to thank all three of you, though, because you are our in-house experts and really extend the ability of the membership of the committee to understand this very critical and very complicated problem.

What I would like to do now, if we could, is have you folks move over to the end of the table, and I would like to bring up our second panel. I want you to listen carefully to the second panel testify, and as we go through questions, we may need to refer to you for some answers as our experts.

So thank you very much.

Mr. HUNTER. I would now like to welcome our old friends, Thomas Grumbly, Acting Under Secretary of Energy for the U.S. Department of Energy, and Sherri Wasserman Goodman, who is the Deputy Under Secretary of Defense for Environmental Security for the Department of Defense.

I thank you for being with us again. Who would like to lead off first? It is your call.

Mr. GRUMBLY. Well, Mr. Chairman, I guess I would like to be chivalrous and let Ms. Goodman start.

Mr. HUNTER. How kind of you, Mr. Grumbly.

STATEMENT OF SHERRI W. GOODMAN, DEPUTY UNDER SECRETARY OF DEFENSE FOR ENVIRONMENTAL SECURITY, U.S. DEPARTMENT OF DEFENSE

Ms. GOODMAN. I say he is trying to avoid the heat here.

Mr. HUNTER. Welcome to the committee, Sherri.

Ms. GOODMAN. Thank you, Mr. Chairman—there are several Messrs. Chairmen here—it is a pleasure to be here with you today.

As you know, the Department of Defense operates one of the most diverse and, I believe, one of the most successful environmental programs in the Nation today, from toxic and hazardous materials cleanup to protection of natural and cultural resources.

Our Secretary, Dr. Perry, says it best. In his words:

> In the past 25 years, the United States Armed Forces have emerged as national leaders in protecting and preserving the lands, airways and waters we use to train and operate. The Department of Defense has an aggressive environmental program that is critical to the defense mission.

Our military has incorporated environmental stewardship into everything it does because our soldiers, our sailors, our airmen and our Marines determined long ago that environmental security is part of the defense mission.

DOD's environmental security program is based on five fundamental principles. First, protect our people. People are our most precious resource. We protect the health and safety of several millions of men, women, and children who work, live, and play on our military installations.

Second, protect our equipment and facilities from fire and environmental deterioration. As you well know, equipment and facili-

ties are essential war-fighting assets, and their protection is a major component of combat readiness.

Third, protect our land. DOD manages 25 million acres, about the size of the State of Virginia. We have to conserve the training ranges, natural resources, and preserve the archeological sites and historic buildings on that 25 million acres.

Fourth, we need to be a good neighbor. We will not allow pollution to endanger the health and environment of the communities we defend, the same communities that supported us during the cold war and Desert Storm.

And fifth, comply with the law. That is the law and our duty. We know that failure to comply with laws and regulations can place our commanders in jeopardy and drastically affect operations.

I have been in this position for 3 years, and I have visited many of our military installations and seen firsthand how our people incorporate environmental security into the defense mission. I am proud of the military's environmental stewardship, and I urge the committee to join me in making sure our forces can continue this fine work.

Today I would like to use the example of Langley Air Force Base in Virginia to illustrate the types of environmental security activity and their interconnection to the defense mission.

Many mission-related activities, shown in blue on the chart, have an environmental security component. Examples at Langley Air Force Base include aircraft maintenance, engine testing, corrosion control and fueling. These activities all involve hazardous materials and compliance with Federal and State regulations. They also represent potential opportunity for pollution prevention and environmental technologies to reduce or eliminate hazardous waste.

Why are pollution prevention and compliance so important? Look at the red areas that ring the site. These are our cleanup sites. Most are closed landfills or waste pits that received hazardous waste from mission-related operations before and during the cold war, which now threaten the groundwater or the waters of the Chesapeake Bay. Most of these sites are obvious. Fuel spills or leaks from mission-related fueling activities near the flight line contaminated the soil and groundwater nearby. This now requires monitoring and cleanup.

Cleanup remediates contamination from historical activity, and Langley is the oldest continuous-operating air force base in the country. Back in the 1920's, it was the site of extensive lighter-than-air dirigible operations.

In brown are essential installation support activities which have an environmental component, such as wastewater treatment, stormwater disposal, hazardous material disposal, and medical hazardous material storage and medical waste disposal—all basic services on our military bases, which are small cities, all things you need just to open and run your base every day.

Finally, green represents land management and conservation, which at Langley includes wetlands protection and maintenance and preservation of historic buildings.

The budget for the pillars of environmental security is shown in the pie chart now in front of you. Our total budget request for fiscal year 1997 is $4.7 billion, which is slightly less than 2 percent of

the DOD budget. You can see the figures here. This represents a $300 million decline from fiscal year 1996 and an 8-percent overall real decline in our budget request.

Our strategy to meet future environmental needs in an era of tight fiscal constraints has four components. First, cost avoidance through pollution prevention and environmental technologies. Investments to eliminate or reduce the use of hazardous materials at the source, which means an end to environmental liability and greatly reduced compliance costs.

Second, adopting risk-based management to ensure we are addressing the highest-risk problems first. As GAO and CBO noted, we have developed a relative risk site evaluation process for our cleanup program.

Third, responsible regulatory reform to help us in the outyears to continue to make the most progress with the resources available.

And fourth, community involvement in environmental compliance, protection, and cleanup.

Let me turn now to the cleanup program. DOD's cleanup program is no longer only about the sins of the past, but it is now a bridge to the future. Why? For three reasons.

First, we are using relative risk, and that is important because we can put our sites in high, medium, and low relative risk categories, and this scheme is helping us manage. And it is not true that we are treating everything as a high priority. We have all three categories, and we are considering those levels appropriately.

Second, we have restoration advisory boards, citizen groups, at over 200 military installations now, which help the local community and the people who live and work around our military installations understand what the Department of Defense is doing and participate appropriately in those environmental decisions.

And third, technology. Technology is important to help us get better results faster and cheaper and also to help this fast-growing industry in the United States.

We very much need stable funding in the environmental restoration program in order for us to continue the good momentum we have developed. We plan to invest in 1997 over 70 percent of our environmental dollars in actual cleanup activities.

We are in the dirt-moving phase of this program, members of the committee. We have done the analysis we need to do to understand what is in the ground. We need your support to move into this phase and get the job done for the men and women who live on our military installations.

This year, we are proposing to devolve the way the DERA account is managed to the military department. It is not true that we are disestablishing the account. There will still be a DERA account. Instead of one central account as you have now, there will be a DERA Army, a DERA Navy and a DERA Air Force, and a DERA defense agencies account.

Devolvement will directly involve the military departments and defense agencies in validating the cleanup efforts and balancing the cleanup program with other military requirements in planning, programming, and budget preparation. That is important for three reasons. This approach is consistent with the program requirements and budget development process that we use in other DOD

programs, such as in the compliance program and in most of the rest of the military departments Total Obligation Authority [TOA] that you already review today.

Second, it allows environmental restoration requirements to compete with other mission requirements, subjecting the program to the scrutiny of the services' financial managers to increase consistency, ability, and accountability of the program.

And third, it will maintain funding and regulatory enforcement protection allowed by force majeure.

I should add a fourth here, which is that I believe this will give Congress better oversight of the Defense Environmental Restoration Act [DERA] program, not less. You will have more insight into the program than you do now.

Mr. Chairman, you asked me to discuss Superfund reform; as I believe I have already exceeded my time, I am going to be very brief in this area. Let me tell you that we do, however, support responsible reform in this area. Reforming the remedy selection is most important. Let me just mention three areas which we would like to see reform. Those are, first, considering future land use in the decisionmaking process. I believe that is extremely important. The second is eliminating the preference for permanent and treatment, and third is allowing us to use generic remedies.

We have some specific DOD legislative proposals, and I am prepared to discuss those in answer to your question. Some of them were mentioned by the agencies earlier, particularly reforms to the National Priorities List [NPL] listing process.

Let me move on now to compliance because there were a number of comments made about DOD's compliance budget here, and I welcome the greater scrutiny of our program because I believe it is going to help us enhance the return on investment that we can provide.

Let me tell you that 3 years ago when I came to the Department, there was no oversight and no accounting system for DOD's compliance program. I initiated 3 years ago the first efforts to put in place an accounting system with the DOD comptroller so that we can begin to track environmental compliance projects. Then, last year, I initiated a second effort to begin the process of bringing the rigor that we have already brought into the cleanup program into DOD's compliance program, and we are now breaking new ground in three ways.

First, we have established goals, policies, strategies, and measures of merit through the issuance of the first ever DOD environmental security directive, which the Deputy Secretary of Defense signed out just several weeks ago.

Second, we have a formal budget process format that relates our budget requirements to specific strategies and goals. We have never had that before in the compliance area.

And third, we have developed a funding classification system that is applicable to all of our pillars in compliance, pollution prevention, and conservation. This classification system builds upon the one developed by EPA, but it is more detailed to ensure consistency by the military departments.

I believe this will give you a better insight into DOD's compliance program.

Let me mention just briefly that one of the later witnesses from the Hazardous Waste Action Council will raise an issue with you concerning how we manage multiple awards of IDIQ contracts. Let me assure you, Mr. Chairman, that we are working very closely with the industry association to provide the necessary assurance that we can continue our environmental restoration contracting in a way that keeps progress in this program.

Finally, the Navy will be putting forward to you a proposal on managing shipboard solid waste, and I urge your favorable consideration of that.

I believe the Armed Forces have made great strides in implementing new and useful measures for protecting our people, our installations, and our Nation. I welcome the committee's interest in our program.

In conclusion, I would like to recognize the command excellence of the Army, Navy, Air Force, and Marines in not merely meeting environmental goals and objectives, but in continually improving the quality of our environmental stewardship and continuing to search for better ways to get return on investment.

The military tradition of getting things done and the pride in the quality of our work make the environmental program worth of your support.

Thank you very much.

Mr. BATEMAN. Thank you, Ms. Goodman. You have packed a great deal of information into a very short period of time, which we appreciate.

[The prepared statement of Ms. Goodman follows:]

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HOUSE NATIONAL SECURITY COMMITTEE

DEPARTMENT OF DEFENSE ENVIRONMENTAL SECURITY PROGRAM

STATEMENT OF

SHERRI W. GOODMAN

DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)

BEFORE THE

SUBCOMMITTEE ON MILITARY PROCUREMENT
AND
SUBCOMMITTEE ON READINESS

MARCH 21, 1996

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE NATIONAL SECURITY COMMITTEE

ENVIRONMENTAL SECURITY -- DEFENDING OUR FUTURE

The defense of our nation and environmental protection have a strongly linked history dating back several decades. Today the Department of Defense operates one of the nation's most diverse and successful environmental programs from protection of natural and cultural resources to hazardous materials cleanup. Secretary of Defense William J. Perry says it best,

"In the past 25 years, the United States Armed Forces have emerged as national leaders in protecting and preserving the lands, airways and waters we use to train and operate. The Department of Defense has an aggressive environmental program that is critical to the defense mission."

With the continuous support of strong bi-partisan interests over the past two and a half decades, our armed forces have incorporated the tenets of responsible stewardship into almost everything they do: from pollution prevention to conservation, compliance and cleanup of contaminated sites. They've given a high priority to defending our future through environmental security.

Why? For the same reason that motivates much of what our soldiers, sailors, airmen and marines do: They determined long ago that environmental security is part of the defense mission. DoD's environmental security is based on five fundamental principles:

1. **Protect our people.** People are our most precious resource. Thus we must protect the health and safety of several millions of men, women and children who work, live, and play on our installations: They deserve the same level of environmental protection as all other Americans.

2. **Protect our equipment and facilities from fire and environmental deterioration.** Equipment and facilities are essential warfighting assets. Their protection is a major component of combat readiness.

3. **Protect our land** about the size of Virginia by conserving its training ranges, natural resources, and preserving its archeological sites & historic buildings.

4. **Be a good neighbor.** Military activities affect the quality of the land, air and water in communities surrounding our bases. We will not allow pollution to endanger the health and environment of the communities we defend, the same communities that supported us during the Cold War and Desert Storm.

5. **Comply with the law.** Compliance is the law and our duty. We know that failure to comply with laws and regulations can place our commanders in jeopardy and force them to cease operations. The Department of Defense is subject to the same environmental laws and regulations as the rest of the nation. We are tackling the same challenges confronting the nation's industrial and commercial sectors, with the additional obligation of steadfastly supporting DoD's number one priority -- maintaining the best trained, best equipped, most ready, and most effective military forces in the world.

Environmental Security also supports DoD's major priorities: **readiness, quality of life, and modernization:**

Environmental Security supports readiness by maintaining access to air, land and water for training and testing. On the 25 million acres of land managed by DoD are significant natural and cultural resources. Careful use of the air, land and water ensures our forces will continue to have access to these resources to train and operate. And the faster we clean up contaminated sites, the quicker we can put these lands back into use.

Environmental Security preserves the quality of life of our forces and their families. As all of us know, our military makes extraordinary sacrifices to protect the nation's security. The very least we can do is give them the same protection from environmental, safety and occupational health hazards that the rest of America expects and enjoys.

Environmental Security enhances modernization through investment in pollution prevention and environmental technology. The technology for 21st century warfare is evolving at an unprecedented pace. The screening of weapons systems for hazardous materials generation can prevent pollution in the first place, and save money overall. That is why DoD now endeavors to include the life-cycle costs of its weapons in the planning process. For example, the New Attack Submarine (NSSN) is being designed and constructed so that the operation, deployment, maintenance, overhaul, and ultimate disposal will meet or exceed all applicable environmental requirements. A 50% reduction in high level radioactive waste will be achieved by designing the reactor core to last the life of the ship and NSSN operation and maintenance will produce 90% less hazardous waste than current submarines.

Over the past three years, I've visited many of our military installations and seen first hand how our people incorporate environmental security into the defense mission. They consider it part of their job. Our forces are defending a beautiful nation and they want to keep it that way. As Deputy Under Secretary of Defense for Environmental Security, it's my job to represent the military's environmental commitment and achievements at the highest levels in the Pentagon. It is also my privilege. I'm proud of the military's environmental stewardship, and I want everyone to know about it. I urge the Committee to join me in making sure our forces can continue this fine work. It's indivisible from the defense mission.

But it's more than that. Every large industrial organization in America has an environmental program to protect its people, preserve its access to resources, comply with the law and to be a good corporate citizen. It's just plain good business. The Department of Defense is the nation's largest industrial organization. Thus, DoD also has a responsibility to be a good environmental steward.

Bi-Partisan History of Environmental Security

Before I outline the Environmental Security program for FY 1997, I want to take a few moments to put the program into historical perspective.

The Department's environmental efforts have strong bi-partisan roots. The program began with passage of the National Environmental Policy Act of 1969. By the mid-70s, military bases were beginning to promote environmental awareness. President Reagan signed legislation in 1984 that created the Defense Environmental Restoration Account. Two years later, President Reagan signed the Superfund Amendments and Reauthorization Act of 1986, and issued Executive Order 12580, which requires the Federal Government, including the Department of Defense, to comply with all environmental cleanup standards.

In 1992, President Bush signed the Federal Facilities Compliance Act which requires federal facilities to comply with hazardous materials and waste rules in the Resource Conservation and Recovery Act or face fines and penalties from states and the U.S. Environmental Protection Agency. To focus the environmental efforts of the defense agencies and military departments, DoD created the office of the Deputy Under Secretary of Defense for Environmental Security in 1993.

The Defense Environmental Security Program has five pillars:

1. ***Pollution Prevention:*** to reduce the use of hazardous materials, and curb the emission of pollutants, in military operations as well as in weapons systems acquisition, manufacturing, operations and maintenance.

2. ***Environmental Technology:*** to find and implement new ways to cleanup and protect our resources quicker, cheaper, more effectively and more safely.

3. ***Compliance:*** to ensure DoD complies with federal, state and local environmental, safety and health laws -- and protect lives.

4. ***Conservation:*** to responsibly manage the lands and historic sites that DoD holds in public trust.

5. ***Cleanup:*** to restore DoD facilities contaminated with toxic, explosive, or hazardous waste, legacies of the cold war.

Pollution prevention and environmental technology help reduce future liability and environmental costs. For a little money now, we can prevent bigger cleanup and compliance costs down the road.

Cleanup, Compliance and Conservation are the distinctly "must do" elements of Environmental Security -- we must remediate and restore contaminated sites, and comply with federal and state environmental laws and regulations. As former Secretary of Defense Cheney said five years ago, "cleanup and compliance will be treated as fundamental costs of doing business, costs that will be routinely factored into plans, programs and budgets." Smart pollution prevention and technology investments help us to reduce the costs of these "must do" elements.

Environmental Program Management

The Department of Defense is establishing the management policies and procedures to ensure that human health and the environment is protected at minimum cost to the taxpayer. The DoD Environmental Security Directive published on February 24, 1996, establishes the goals and assigns execution responsibilities for the environmental program. This Directive is the first ever comprehensive environmental directive for the Department of Defense. The DoD instructions, which will be published this Spring, establish the strategies and associated funding priorities that will be used by all Services and defense agencies. The instructions also establish the measures that will be used to determine the effectiveness of Military Department execution of the program.

DoD has revised the procedures for developing and displaying the environmental budget. Importantly, budget categories are now standardized for all Services. Furthermore, the categories are aligned against major goals, strategies and the performance measures. Accordingly, the Department is able to relate the budget entries to specific accomplishments. In addition, the Department is better able to analyze the effectiveness of execution. These changes reflect a two year effort to overhaul the management procedures. They ensure consistency in program focus across the Military Departments. They also ensure consistency in budgeting and performance data collection.

As part of the overall management effort, the Department is taking an aggressive stance to ensure good environmental returns on investments. As part of this effort, members of the Department staff work closely with their counterparts in federal and state environmental agencies to ensure that any new requirement does not affect mission readiness, and provides sufficient increased protection to human health or the environment to warrant the additional investment. The Department is using information from reports such as the Toxic Release Inventory Report to focus future pollution prevention efforts on the major polluters, and is changing the way weapon systems are developed so that the environmental costs associated with their maintenance and disposal are reduced. In coordination with federal and state regulatory agencies, the Department is testing a business approach to environmental protection. This approach permits the regulator and the military installation the flexibility to develop the most cost effective means of achieving the desired environmental performance. The current method imposes technical solutions regardless of their effectiveness. The Department is realigning its environmental research and

regardless of their effectiveness. The Department is realigning its environmental research and development program so that it is focused on those concerns that are unique to the military or are a major source of pollution.

The Department is committed to meeting its environmental responsibilities. However, it is implementing the management procedures to meet these obligations in a consistent and cost-effective manner. Further, it is challenging the traditional approaches to environmental protection to ensure that there are high environmental returns on investments.

Defense Science Board

In 1994, at the request of the Under Secretary of Defense (Acquisition & Technology), the Defense Science Board (DSB) formed a Task Force to review the Environmental Security activities of the Department of Defense, and to make recommendations for improvements. The specific directive of the DSB Task Force was to investigate areas of technology and policy change that could impact DoD Environmental Security in the areas of cleanup, compliance, pollution prevention and natural resource conservation. One of their most significant findings was that "The environment is a major issue for the nation and the DoD and must continue to be incorporated in the mainstream of the DoD's activities and resource allocations." The DSB published its report on Environmental Security on April 22, 1995. The report recommendations helped form the basis for the environmental strategy that follows.

DoD's Environmental Strategy

DoD's strategy to meet future environmental needs in an era of tight, fiscal constraints, has five components.

1. Cost avoidance through **pollution prevention**: Investments to eliminate or reduce the use of hazardous materials at the source means an end to future environmental liability and greatly reduced compliance costs.

2. Investment in **environmental technologies** that lower the costs of cleanup and compliance and provide a good return on investment.

3. Adoption of **risk-based management** to ensure we are addressing the highest risk problems first.

4. Responsible **regulatory reform** to help us in the out years to continue to make the most progress with the resources available.

5. **Community involvement** in environmental compliance, protection and cleanup decision-making.

I'd like to outline our accomplishments and our plans for FY 1997.

Pollution Prevention

The Department of Defense is committed to a pollution prevention program that improves every aspect of its activities. Pollution prevention reduces or eliminates environmental contamination and degradation by materials management at every level of Defense operations. Pollution prevention thus reduces the volume and toxicity of substances released or needing disposal. It also reduces future compliance costs. Only by reducing or eliminating hazardous materials and those processes that generate hazardous by-products can we begin to lower overall costs. This is the proverbial "ounce of prevention that is worth a pound of cure". The Military Departments have conducted basewide surveys to identify pollution prevention opportunities. They are prioritizing these opportunities based upon return on investment and the health risk of the existing process or material.

Pollution prevention is a good business approach. Most projects pay for themselves in three years or less. In addition, many of the new processes do the job better, safer and faster. In so doing, they can contribute to readiness, modernization and quality of life. An example is the new paint booth at Edwards Air Force Base -- so large it can hold a Boeing 707. It includes a unique carbon adsorption/desorption system that captures over 98% of volatile organic compounds and 99% of particulate emissions from the paint application area. The use of this best available control technology has made Edwards a model for aerospace coating activities. Edwards AFB is now receiving contract work from the Army, Navy and NASA. Within five years, Edwards plans to become the primary painting facility in central and southern California. At a time when many military projects are leaving California, Edwards is bringing projects back to the state, and is well on its way to repaying its building costs, thanks to a cost-effective operation and pollution-reducing technology.

Installations: The Pharmacy Concept

DoD components are implementing pharmacy programs for centralized hazardous materials management at their facilities. Benefits include: spill risk reduction, reduced procurement, reduced waste generation and, most importantly, a net reduction in costs. The programs emphasize centralized management, limited distribution and cradle to grave tracking of hazardous materials. These systems streamline tracking of all containers used to dispense hazardous materials. Swift, guaranteed delivery eliminates the need to store large volumes of materials at the shop level. For example, the Jacksonville Naval Aviation Depot's centralized hazardous material management program has reduced material purchases by $3.6 million over three years, eliminated 75% of the hazardous materials stored in shops and reduced overall use 50%.

New Weapons Systems

DoD also is emphasizing pollution prevention in the design and development of new weapon systems to reduce the environmental impacts and costs of its operations. Decisions made in weapon system design and in the development of maintenance procedures can have environmental impacts twenty to thirty years in the future. Therefore, integrating pollution prevention into weapon system design and development is an effective method for minimizing future environmental problems and for lowering operational costs. DoD is in the process of

integrating environmental considerations into weapon systems management by: including environmental costs in each system's life-cycle cost estimate, identifying and assessing environmental, safety and occupational health risks and impact, and by working to reduce or eliminate the risks and impact where feasible.

In addition to incorporating pollution prevention into system design, DoD is reviewing military specifications and standards to ensure that these standardized documents do not unnecessarily require the use of hazardous materials in production or operation of weapon systems. In a related initiative, DoD has adopted a commercial standard called NAS-411, that incorporates pollution prevention.

Existing Weapons Systems

It is equally important that DoD integrate pollution prevention into existing weapon systems. Most of the weapon systems DoD operates were designed and produced before the current pollution prevention programs for new systems were put into place. In addition, the modest funding levels for modernization over the past several years have not allowed DoD to phase out its older systems. Consequently, DoD cannot rely on modernization to reduce the amount of hazardous materials used in the operation and maintenance (including repair and overhaul) of existing weapon systems and the costs associated with environmental compliance. Current programs to reduce the use of hazardous material in activities such as paint removal indicate that reduction efforts must proceed cautiously to avoid adversely affecting the weapon systems' performance. DoD's experience with efforts to decrease reliance on ozone depleting substances in weapon system operation and maintenance provides numerous lessons learned on how to reduce the use of environmentally harmful materials in weapon system operations, while ensuring the operational readiness of these systems is maintained. DoD is building on these lessons learned to determine the best and most cost effective approach to integrate pollution prevention into the management of existing weapon systems.

Further, DoD is working with industry to reduce the use of hazardous material in manufacturing processes. The initiative, known as the Joint Group on Acquisition Pollution Prevention, involves seven major corporations including McDonnell Douglas, Texas Instruments, Hughes Missile Systems, United Technologies-Pratt & Whitney, Lockheed Martin, Boeing and General Electric. The joint group is working with each manufacturer and all of the programs supported at a specific facility to reduce the use of specific hazardous materials. Systems included in the initiative include the AV-8B, F-15, F-18, the Maverick, Stinger, Chapparral and Advanced Cruise Missiles and the Harpoon/SLAM. This initiative benefits both the manufacturer and the government.

ENVVEST

Significant opportunities exist for new regulatory approaches in the pollution prevention area. ENVVEST is a common sense, cost effective regulatory reform action undertaken by the Department of Defense and EPA together, as part of the President's efforts to reinvent environmental management. It stands for Environmental Investment: This year DoD will test this new approach to environmental management at 3 to 5 DoD installations. In 1995, DoD signed a Memorandum of Agreement with EPA to review high-cost, immediate compliance needs, and begin to shift spending to pollution prevention projects with a high return on investment to reduce or eliminate the pollutant source.

The first step in this initiative is to identify those command and control environmental compliance requirements that provide minimal benefit to the environment, analyze the pollutant streams, and identify alternative materials or processes that are not mandated by law but provide more environmental benefit. Once all this information is analyzed, DoD, EPA and the appropriate state will make specific investments in pollution prevention in exchange for flexibility in meeting selected environmental requirements. DoD is working with California, Florida, Texas, Washington and Alaska on ENVVEST projects at military installations. To ensure citizen involvement and review, DoD is establishing an independent evaluation process to measure the results and produce reports to allow all interested parties to assess the progress at each selected site. We think this approach will produce overall results beyond what would be achieved with existing regulations, and will serve as a national model for performance-based environmental management systems.

TRI Data and Toxic Reduction Investment and Management - TRIM

Executive Order 12856 directed federal agencies to comply with the requirements of the Emergency Planning and Community Right-to-Know Act of 1986 including the reporting of Toxic Release Inventory (TRI) data. DoD has just published it first report on toxic releases at military installations. This information shows that DoD's top chemical releases are solvents used in painting and depainting, and provides a baseline to use in the evaluation of our other pollution problems.

The Toxic Reduction Inventory and Management, or TRIM, initiative will use DoD's Toxic Release Inventory data as a tool to identify and evaluate our largest pollution problems. Going beyond just identification of large TRI releases, TRIM will identify and quantify the industrial and maintenance processes that produced the releases, then ascertain the specification or other technical document that requires the process to use a TRI chemical. Although the results of the TRIM analysis will not be the sole basis for prioritization of component pollution prevention efforts, it will provide valuable assistance to the Department in developing its pollution prevention investment strategy to focus on the highest payback projects, better targeting its environmental technology efforts, and prioritizing the revision of our military specifications and standardized documents.

The Department is requesting $319 million this year for these high-payback efforts that have become a cornerstone of the Environmental Security program.

Environmental Technology

The Environmental Technology program makes investments in environmental research and development for military needs and uses. Secretary Perry has stated, "Innovative technologies are critical to our country's national and environmental security. Through advanced technology we can reduce the cost, risk, and time needed to meet the Department's environmental challenges."

Serving Military Unique Needs: SERDP and ESTCP

Environmental Technology affects all aspects of defense environmental security by creating a greater ability to prevent pollution at the source, achieve compliance at less cost, and create faster, cheaper, and more effective cleanup tools. The programs that develop new environmental solutions to improve DoD performance are the Strategic Environmental Research and Development Program (SERDP), the Environmental Security Technology Certification Program (ESTCP), and the Service component's research and development. Service unique environmental problems are addressed through the Services' individual programs. Many environmental problems facing the Department cut across the Services. DoD coordination of the Services' activities eliminates potential duplication and ensures resources are effectively invested.

Return on Investment for Environmental Technology

To ensure DoD investments in environmental technology yield the necessary return, the Department has put increased emphasis on the demonstration and validation of environmental technologies through ESTCP. Unless we successfully transition innovative environmental technologies, DoD will never reap the benefit. ESTCP helps in these efforts by demonstrating and validating new technologies, promoting regulatory and user acceptance, and recommending direct implementation at DoD facilities.

ESTCP Progress

In 1995, ESTCP initiated 26 technology demonstrations which include recovering aircraft maintenance and pollutant emissions, biotreating explosives in groundwater, developing advanced sensor technologies for detecting environmental contaminants and meeting other high priority DoD unique environmental problems. This year we are transitioning technologies successfully demonstrated by ESTCP to DoD users and have initiated 9 new demonstrations.

Examples of the investment we have made and their expected payoff for defense needs include:

- **Plasma Arc Destruction of Mixed Hazardous Wastes.** A model demonstration plasma arc waste treatment facility is being planned for the Norfolk Naval Base to convert hazardous wastes to benign, safe gases and solid materials. Plasma arc technology has been shown to be capable of destroying hazardous waste in prototype systems, but no production systems are operating in the U.S. A plasma arc operates on the same principle as lightning, but a plasma torch maintains a continuous "lightning bolt" in a protective chamber. The system, when constructed, will be capable of destroying more than 1.5 million pounds of hazardous waste each year.

- **Small Arms Range Remediation**. The cleanup of both active and abandoned small arms ranges is a high priority for all Military Services. This joint project, being demonstrated at Fort Polk, Louisiana, will yield substantial savings to both the Navy and the Army. The estimated savings across DoD are on the order of $100 million.

- **Fiber Optic Biosensor**. This project, being demonstrated at Naval Surface Warfare Center, Indian Head, Maryland, and Naval Submarine Base, Bangor, Washington, meets DoD's need for a hand-held device to test for TNT and other contaminants in water. Currently, the cost for each soil and water sample analyzed ranges from $100 to $1000. The type of analysis that can be performed using the fiber optic biosensor is estimated to cost only $1 to $10 per sample.

- **Remote Controlled Surface and Near Surface UXO Detector.** This technology project is being managed by the Electronic Sensors Directorate at Fort Belvoir, Virginia, and being tested at the Army Proving Ground in Yuma, Arizona. It will provide for the detection, location, and removal of surface and near surface UXO. Initial estimates for this technology show that a remote controlled survey vehicle with a moderately skilled operator can survey seven times more area per hour than a highly trained operator with hand-held sensors at roughly the same cost per hour. It is also an inherently safer technology to employ.

DoD's strategy for providing innovative technologies to reduce the financial and mission impact of meeting the Department's environmental goals is threefold: systematic identification of user needs; focused research and development of new technologies to meet DoD unique needs; and, demonstration and validation of innovative technologies to promote rapid implementation.

Currently, the Department of Defense cannot enter into cooperative agreements with other federal, state or local government agencies, to assist the Department in demonstrating and validating environmental technologies. Unlike biotechnology, where FDA approval gives the developer a nationally recognized seal of approval, environmental technologies today must be approved by each state based on local conditions -- a "zip code marketing" approach. No nationally recognized seal of approval exists. DoD is reviewing a solution to this problem and may propose legislation to address it in the FY 1997 Omnibus Bill.

DoD is requesting $179 million for all environmental technology programs, which includes ESTCP, SERDP, and Service environmental technology programs.

Compliance

Compliance with environmental laws and regulations is an inherent responsibility of each DoD installation, and is fundamental to the performance of each installation's mission. Every base must conduct essential activities to open the gates and operate each day.

Daily Installations Activities

For example, on a daily basis, installations:

- Provide heat and electricity to maintenance shops, administrative buildings, housing units. These utility plants create hazardous air pollution that must be controlled and treated in accordance with the Clean Air Act.

- Paint and depaint equipment - aircraft, tanks, and ships - for corrosion control, chemical agent resistance, and camouflage. These operations create hazardous waste, which must be managed in accordance with the Resource Conservation and Recovery Act, and hazardous air pollutants, which must be captured and treated in accordance with the Clean Air Act. The common method of treatment transfers the hazardous constituent to water, creating industrial wastewater.

- Store and dispense fuel to aircraft, tanks, and ships. These tanks require air permits under the Clean Air Act and must meet standards set by the Resource Conservation and Recovery Act to prevent future leaks and contamination.

- Provide medical care. The incineration of medical waste creates many hazardous pollutants which require Clean Air Act controls and permits.

- Conduct plating operations as part of repair and maintenance of equipment. These plating operations require the use of highly toxic metals and create hazardous waste, hazardous air pollutants, and industrial wastewater.

- Provide safe drinking water to all of the men, women, and children who live and work on our installations. The Safe Drinking Water Act provides the minimum standards for water being sent to homes and office buildings and protects the sources of drinking water.

- Treat wastewater generated by industrial shops, such as plating operations and paint booths, and domestic sources, such as base housing units. The Clean Water Act sets standards to ensure that these wastewaters do not contaminate sources of drinking water and generally protect water quality.

The compliance budget is divided into two basic types of activities - recurring, day-to-day requirements to maintain compliance with existing environmental regulations and non-recurring, one-time projects to correct an existing problem, implement a new requirement or meet a requirement in the near future.

- Recurring activities include all the environmental activities that support the ongoing mission of an installation. These include hazardous waste storage, record keeping, manifesting, transportation and disposal; sampling, monitoring, and testing air, drinking water, and wastewater; spill response; maintaining over 10,000 environmental permits, including recordkeeping and reporting, maintaining pollution control equipment. The size and type of requirements is directly related to the size and type of operations occurring on an installation.

- Non-recurring activities include the individual projects and activities needed where an installation is out of compliance with an existing regulation or to initially comply with a new regulation to meet a compliance deadline. These include upgrading or replacing wastewater treatment plants, repair deteriorated sewer lines, remove or replace underground storage tanks, and prepare Clean Air Act Title V permit applications.

Notice of Violation (NOV) Reduction

The Department was successful in its FY 1995 compliance goal. It reduced the number of open notices of violation (NOVs) by 51%, since FY 1993. New NOVs have fallen by approximately 48% since 1993. These improvements are due to more vigorous compliance efforts by DoD components, increased use of self assessments, better dissemination of information, improved education and training, and an increasingly effective pollution prevention program.

In FY 97, DoD will continue many of the compliance efforts that have proven successful over the past few years. Specific actions include the continued effort to replace and upgrade underground storage tanks which must meet a 1998 deadline requiring corrosion protection and spill and overflow prevention, the upgrade of wastewater treatment plants to meet tighter state and local standards, and the upgrade of air emission sources to meet new rules under the Clean Air Act Amendments of 1990.

Compliance and Readiness

The challenge for DoD's environmental security compliance program is to protect the readiness of U.S. military forces while meeting Federal, state, and local environmental requirements with a stable compliance budget. The strategy to meet this challenge includes working with regulators to ensure that new regulations provide the necessary protection to human health and the environment at a reasonable cost. For example, by working with the Environmental Protection Agency and the Aerospace Industries Association, the Department helped develop a new Clean Air Act regulation that will reduce hazardous air pollutants for aerospace coating operations. The final regulation will save over $1 billion in implementation costs, while achieving over 99% of the needed reductions.

Compliance with environmental regulations has typically focused on "end-of-pipe" controls - collection, treatment, and disposal of hazardous air and water pollutants and hazardous waste. This strategy results in the treatment and disposal of the same pollutants and wastes each year. Increasing costs of operating these treatment facilities and disposing of hazardous waste, along with fines and penalties for non-compliance, have forced DoD and industry to re-think these old strategies. Common sense dictates that the best strategy for protecting human health and the environment from these hazards is to eliminate the source, i.e., the use of hazardous materials or generation of hazardous pollutants, wherever practical. Therefore, the success of DoD's compliance program is closely tied to the pollution prevention program. Reducing or eliminating pollutants and wastes eliminates a host of regulatory requirements, such as permitting, monitoring, testing, reporting, and record keeping.

DoD's hierarchy of pollution prevention/compliance actions is:

1. Source Reduction - Substituting hazardous materials for environmentally friendly products or processes.

2. Recycling - Avoiding disposal costs by treating and reusing waste materials.

3. Treatment - Reducing the toxicity or volume of a waste or discharge.

4. Disposal - Landfilling wastes, both hazardous and non-hazardous.

By moving up the hierarchy, DoD can systematically work towards reducing annual compliance costs and enhancing environmental quality.

Environmental Security has taken the lead in promoting responsible regulatory reform to improve performance and reduce costs. This year DoD is submitting legislative proposal for the sale of Clean Air Act Emission Reduction Credits and for uniform regulations of military munitions in the FY 1997 Omnibus Bill.

Clean Air Act Emission Reduction Credits Legislative Proposal

This proposal would provide authority to DoD to retain proceeds from the sale of Clean Air Act emission reduction credits, allowances, offsets, or comparable economic incentives. The proposal would add a new section to Title 10.

The Clean Air Act, as well as other environmental statues, are increasingly relying on market solutions such as trading of emission credits to achieve compliance in a cost effective manner. Existing federal regulations restrict the incentives and ability of military installations to actively participate in local emissions trading programs. Allowing DoD to retain the proceeds encourages installations to generate credits to trade and provides the funds to purchase air credits when necessary to meet regulatory requirements.

Retention and use of proceeds at the installation level is a key component of the proposed bill. This authority is similar in concept to existing authority for the sale of recyclable materials passed in 1982 as Public Law 97-214, 10 U.S.C. 2577. Proceeds from the sale of recyclable materials in the DoD program increased from $1.5 million in FY1983 to $37 million in FY1992. The success of the DoD recycling incentive program clearly demonstrates that there can be significant benefits to the environment that also make sense economically when direct economic incentives are created to reduce pollution.

This provision will not result in increased cost to the military. Military installations will develop tradable credits only when economically beneficial for future use at the same or other installations or for trading on the private market. Proceeds would be used to fund the creation of the credits. Any remaining funds would then be available for other environmental projects or programs.

FY 1997 Compliance Budget

DoD is subject to the same environmental, health and safety regulations as private industry, and it must plan and budget for environmental compliance just as any large company would. The Fiscal Year 1997 request is $1.9 billion, reflecting DoD's commitment to support readiness, protect the men and women who work and live on our installations, and meet environmental laws and regulations.

Conservation

The Department of Defense requires access to large expanses of land, air, and water to conduct military training exercises and test equipment -- essential components of readiness. Conservation includes the sound management of our natural and cultural resources to sustain the military mission and protect access to land, air, and water.

The DoD controls a land area about the size of Virginia, more than 25 million acres. Most of this land is held to support readiness of our forces by training our troops or testing weapon systems. Now more than ever, continued use of, and access to these lands is required for today's powerful and sophisticated weapons systems which need large areas for training and testing. For comparison, during the Civil War, one battalion required approximately 200 acres of land for training maneuvers. Today, one mechanized battalion needs more than 80,000 acres to train effectively for combat.

Integrated Training Area Management (ITAM)

The Army's Integrated Training Area Management program or ITAM is an outstanding example of how the military addresses the protection of training resources through planning and conservation. The ITAM Program integrates military training, testing, and other mission requirements with the condition of the land and its ability to support the mission requirements. Service commanders realize that conservation activities directly support training and readiness. Protecting and maintaining our installations and training lands is an important requirement for their continued use. ITAM is used as a decision-making tool at 113 Army installations. The ITAM Program avoids undue and irreparable damage to vital training ranges by providing accurate assessments of land conditions and wildlife habitat to managers and commanders. The benefits of ITAM include increased training realism, reduced costs for environmental compliance and restoration, and a continued high level of military readiness and land stewardship. Using trend analysis, installations develop an understanding of the land's ability to withstand training stresses. Soldiers learn how to identify areas that provide good tactical concealment, the most stable routes for heavy motorized vehicles, and areas to avoid. Although it began as an environmental conservation program, in FY 1994, ITAM's programming responsibility passed from the environmental managers to those charged with Operations and Plans. With ITAM at their disposal, installation commanders can be assured that their mission is not hindered and that proper land management will accompany continued intensive training. ITAM has resulted in significant savings at places such as the Pinon Canyon Training area at Fort Carson and Fort A.P. Hill in Virginia. The Marines have a similar range protection planning tool. It is called the Long Term Ecological Trend Management Program (LTETM).

Installation Conservation

Why is installation conservation such an important public issue? Because DoD installations want to be good neighbors and many share their great resources with the public. For example, over 60% of Air Force property is shared with the public. Air Force installations support a half-million acres of managed forests, 150,000 acres of grazing land and agricultural crop production, issue 12,000 permits for hunting and fishing, and 7,000 permits for camping and picnicking.

DoD's Islands of Nature

The military has long managed their lands to protect fish, game and timber, but one unheralded aspect of DoD land management has resulted from the existence of buffer zones for noise and ordnance protection and limited access policies due to security considerations. During the Cold War years, before the current era of environmental vigilance, military training proceeded in unrestrained coexistence with plant and animal species which have survived and prospered in "islands of nature." At Eglin Air Force Base, under the flight path of A-10 warplanes, rare species of birds, reptiles, and plants continue to grow and thrive -- a perfect example of how performing the military mission and protecting natural resources are not mutually exclusive endeavors. For its natural resource conservation, Eglin has won the prestigious Nature Conservancy Award for Biological Diversity/Wilderness. Today DoD is heading toward an integrated approach to conservation that allows the military greater flexibility in managing its lands. Rather than be tied to the limited objective of protecting a few endangered species, Marine Corps Base Camp Pendleton demonstrates how a heavily used military base can successfully coordinate plans for military activities and management of ecological zones for multiple threatened species. By careful management of endangered species, Camp Pendleton was able to increase its flexibility to train. In 1995, Camp Pendleton signed a unique agreement with the U.S. Fish and Wildlife Service to formalize consultations on the effects of military activities on 14 threatened and endangered species. As a result of the consultation and Camp Pendleton's proposed management practices, military training can now occur in riparian areas that were previously off-limits because of the presence of endangered species. Successful management in this fashion will release DoD from the inflexible regulatory demands occasionally associated with protecting endangered species, and are an indication of the maturity and success of the DoD program.

Air Force Bird Air Strike Hazard Program

Another important mission-oriented conservation program is the Air Force's Bird Air Strike Hazard (BASH) program, which is aimed at minimizing collisions between military aircraft and birds. Knowledge of where birds travel, nest, and feed helps DoD avoid problem areas and therefore avoid the destruction of valuable airplanes. This is not a small problem -- from January 1992 through June 1993 the Navy reported 27 major mishap bird strikes that cost an estimated $98 million. In September 1995, an E-3B aircraft departing Elmendorf AFB struck a flock of Canada Geese. The aircraft crashed and all 24 crew members were killed. As a result of this accident, the Air Force has improved its preparation for the bird migration season and developed a more aggressive program to detect and deter geese.

Conservation Budget

DoD is requesting $107 million in FY 97 for the military Services' conservation programs.

Cleanup

DERA Devolvement

A major priority for the Cleanup program is implementation of the proposal to devolve DERA, the Defense Environmental Restoration Account, to the Military Departments. DoD's legislative proposal will change the existing authorization of one central transfer account by providing transfer accounts for each of the Military Departments. It will provide for the direct appropriation of Environmental Restoration funds into the four transfer accounts. The Department of Defense is committed to devolvement because it will directly charge the Military Departments and defense agencies with validating the cleanup efforts and balancing the cleanup program with other military requirements in the planning, programming and budget preparation process. DoD proposes to devolve DERA for three reasons: 1) This approach is consistent with the program requirements and budget development process established for all other programs, such as environmental compliance and pollution prevention, that are included in each military component's total obligation authority. 2) It allows environmental restoration requirements to compete with other mission requirements within the Military Departments rather than at the OSD level, subjecting the program to the scrutiny of the Service's financial managers, to increase the consistency, stability, and accountability of the program. 3) It maintains the funding and regulatory enforcement protection allowed by Force Majeure provisions in existing regulatory agreements.

For FY 1997, the Military Departments have assumed planning, programming and budgeting responsibilities for environmental restoration. The Office of the Secretary of Defense will continue to program for the office of the Deputy Under Secretary of Defense for Environmental Security, for the Defense Agencies and for Formerly Used Defense Sites (FUDS), since the latter were caused by the past actions of all Military Departments. Under devolvement, just as before, the Services will ensure continued protection of human health and the environment and will comply with legally enforceable agreements and orders. The Services will enter into new, or adjust existing agreements, using the concept of "flexible" schedules to allow reevaluation of priorities. The Service Secretaries must certify to the Secretary of Defense that their DERA funding is sufficient to meet legal agreements.

DoD's legislative proposal to establish four transfer accounts, rather than just one, aligns the bookkeeping of the funds with the responsibility and accountability for the program. Devolvement builds a strong intra-service consensus about the investment in cleanup and supports better outyear planning. Additionally, visibility of the investment at the Congressional level will improve. My office will continue to report annually to Congress on the environmental restoration program. Some critical parts of the program remain unchanged under devolvement. Consistency and accountability for environmental restoration activities will be ensured through the oversight of the Military Department programs by OSD, and OMB reviews of the program will continue.

With devolvement, decisions about funding levels in DoD budget preparation will be made for the purpose of reducing relative risk within the context of legal agreements and other risk management factors, such as the concerns of stakeholders, program execution considerations, and economic factors. In addition to the relative risk concept, factors such as executability and time to complete the program continue to be crucial considerations that point out the need for stable funding. The concept of stable funding recognizes that DoD's restoration bill should be handled like a mortgage. With a DoD and a Congressional commitment to a stable level of funding, the Military Departments can integrate restoration with other programs, regulators can depend on a consistent commitment from DoD, and the public and communities can see that DoD intends to fulfill its obligations.

Why does DoD have a cleanup program?

In the past, DoD, like private industrial companies and other federal agencies, often disposed of hazardous chemicals at any sites that were available and convenient. Some of these sites are now contaminated with chemicals previously thought to be no hazard, caused by such activities as vehicle and aircraft maintenance, refueling, fire training, painting, and cleaning. Although the use of and disposal of these hazardous items was legal at the time, we now know they were environmentally detrimental.

Coincident with the decision to devolve DERA, the Deputy Secretary called for an independent review of the cleanup program. Clean Sites, an independent non-profit organization, was contracted to provide the review. Clean sites observed that DoD has a well-functioning cleanup program, as evidenced by aggressive action in identifying sites, reaching "no further action" determinations quickly, and progress in cleaning up the Department's most heavily contaminated sites (especially using removal authority to expedite cleanup activities). Clean Sites endorsed the emphasis the Department is placing on relative risk using the Relative Risk Site Evaluation process, and observed that obligation rates have traditionally been high.

Robins Air Force Base

A good example of the types of contaminated sites found at military installations is Robins Air Force Base in Georgia. Robins AFB began in 1941 as a maintenance and supply depot on approximately 3,000 acres of land donated by the City of Macon and Bibb County. As the mission has changed, so has the character, quantity and distribution of hazardous waste contaminants.

Since 1942, when the base was officially activated, the land area of the base has tripled in size to 9,000 acres. It is currently the home to the Warner Robins Air Logistics Center, Headquarters Air Force Reserve, an Air Combat Command Air Refueling Wing, and Air Force Communications Command's 5th Combat Communications Group. Present activity includes logistics management, repair and maintenance for the F-15, C-141 and C-130. The base is also the exclusive technology repair center for airborne electronics, gyroscopes, and life support systems for the Air Force.

As with any large-scale industrial operation dating back over fifty years, hazardous wastes were generated and disposed of in the past. The types of contaminants found at Robins include:

- Solvents and petroleum products used to maintain the operation of aircraft and other vehicles and equipment;
- Plating shop, machine shop, and metal bonding shop chemicals used for maintenance and repair of aircraft, equipment and parts;
- Paint and paint solvents used to maintain aircraft, base facilities and vehicles;
- Pesticides and herbicides used to eliminate pests and weeds;
- Sludges from the wastewater treatment plant; and,
- Commercial solid waste from daily base activities.

Investigations have discovered areas of the base to be contaminated with petroleum products, lubricants, pesticides, solvents, and laboratory chemicals. In addition, the installation has several landfills, fuel storage areas, fire protection training areas, machine shops, and maintenance areas that are included in the restoration program.

In August 1987, two sites at Robins were placed on EPA's National Priority List of most contaminated sites. The other 31 sites remained under the provisions of RCRA, which is administered by the State of Georgia. The Air Force has conducted investigations and performed monitoring including contamination assessments; air quality, surface water and groundwater investigations; geological studies; ecological investigations; land use and population assessments, and cleanup remedial actions.

The remedial actions include cleaning up a drum disposal area, a corrosion control facility, a PCB spill, a DDT spill site and a hazardous waste disposal site where 5 buried concrete cylinders containing pesticides and other hazardous wastes were removed. As a result of the investigations and remedial actions, 67% or 22 of the 33 sites have been classified "NFA", meaning no further action is required. While 6 of these sites were closed out after a remedial action, most of the sites were classified "NFA" following monitoring and investigation studies that proved no additional activity was needed, providing a good example of how studies help avoid additional cleanup costs. Robins is also indicative of why studies now represent a declining segment of activity in the cleanup budget. Quite simply, earlier work screened out the sites requiring no additional action, and the current activity is now concentrating on the remaining remedial cleanup.

Robins Air Force Base also illustrates one of the most important lessons learned in DoD's evolving relationship with regulatory agencies. During the early years of the program, cleanup was hampered by procedural and communication barriers that affected other federal and commercial facilities. Cleanup was further complicated by having both Federal and State oversight of different sites on the base. The results were schedule delays, formal disputes, and the assessment of penalties. In 1991, Robins made a serious effort to create an atmosphere of mutual cooperation, which led to an agreement to find ways to work together more effectively and

accelerate the restoration program. Today cleanup is proceeding apace, and the spirit of commitment is reflected in the Commanding General's motto for Robins AFB as "Lean, Mean and Green."

Cleanup Goal

In the FY 1996 Authorization Bill, Congress created a goal to invest 80 percent of our DERA dollars in actual cleanup by the end of FY 1997. DoD is proud of our increasing investment in real cleanup, which is approximately 70 percent in FY96, but we are concerned that a numeric goal may not have the intended effect. You wouldn't want a doctor to perform surgery without an accurate diagnosis; and at our sites, good field work provides the foundation for cost-effective cleanups. At Tobyhanna Army Ammunition Plant, for example, after some sources of contamination were removed, studies of the groundwater plume showed that the plume was getting smaller, and degrading naturally. The Army has signed a "no action" Record of Decision (ROD) with EPA that provides for continued monitoring of the site, rather than installing a groundwater treatment system, avoiding $5 million in cost. However, 80 percent goal is easier to reach by investing in expensive cleanups than by studying wisely and avoiding unnecessary or expensive cleanups. A strict numeric target will create a "perverse incentive" to spend more on cleanup just to meet the goal. A numeric goal could have resulted in Tobyhanna selecting the more expensive remedy. It also discourages the innovative use of technology to reduce cleanup costs. Perhaps a numeric goal is appropriate for some types of sites. During FY 1996, DoD will examine the universe of cleanups that remain in our program, consider alternative goals that will foster the best return for investment in the cleanup program, and report back to the Congress.

State Involvement

An important component of the Cleanup program is the Department of Defense State Memorandum of Agreement or DSMOA and its associated Cooperative Agreements. The DSMOA was established in 1986 under Section 2119(d) of the Superfund Amendments and Reauthorization Act as part of CERCLA. Through the DSMOA Program, states are reimbursed for services when they participate with DoD in expediting the cleanup of our installations. The Department of the Army, through the U.S. Corps of Engineers, assists DoD in negotiating DSMOAs with states as well as managing the Cooperative Agreements. Since the implementation of DSMOAs in 1986, this program has provided additional cost savings, cost avoidance, and expedited cleanups throughout the country. As of FY 1995, DoD had signed 48 DSMOAs with 43 states and five territories for reimbursable services that assisted cleanup. The states that do not participate have few military installations and generally small DERA expenditures. Additional states have expressed interest in the program.

Before the DSMOA Program, many states relied on their legal staffs to enforce State laws, rather than assist in determining cost-effective cleanup solutions. State personnel were not always well informed about DoD cleanup, which led to numerous misunderstandings between the two sides. Often the disagreeing parties turned to litigation for dispute resolution. The result was often costly and divisive delays which hindered cleanup. Under the DSMOA Program, DoD and the states work together to assess cleanup plans at predetermined sites, and State personnel are involved in the early phases of cleanup decision-making at both active and closing bases and at Formerly Used Defense Sites. The result is a plan to which all parties agree. As the program has matured, the value of this investment has become evident. Governor George Bush of Texas has stated "The DSMOA Program provides resources to states to help speed cleanups and expedite

community reuse plans." According to the Texas Natural Resource Conservation Commission, the DSMOA has reduced the time for state review by as much as six months, avoided additional cleanup of $88.5 million by selecting less costly remedies, and precluded the issuance of fines. In North Carolina, the DSMOA program was estimated to have saved more than $5 million during FY 1994 and FY 1995, a savings of more than 50 dollars for every dollar invested in the DSMOA Program. Since 1990, California believes their staff have assisted DoD in avoiding an estimated $430 million in cleanup related costs. These savings have mostly been accomplished through the use of consensus decision-making. The result -- cleanup funding is being spent on targeted analyses and cost-effective cleanup, and time and resources have not been wasted on disputes, litigation and cost recovery settlements.

Community Involvement

It is DoD policy to involve local communities as early as possible in decisions about environmental restoration activities at installations. RABs or Restoration Advisory Boards have become a significant component of DoD's community involvement activities. They promote cooperation between the federal government and the regulators, and help DoD be a good neighbor with communities by sharing information and engaging in a meaningful two-way dialogue focused on cleanup decision-making.

By the end of FY 1995, over 200 RABs were formed at both operational and closing installations. RABs are operating in 45 states, Puerto Rico, Guam, and the Marianas Islands representing all military Services.

During FY 1996, DoD is focusing on ways to provide technical assistance to RABs within the guidance established by Congress in the FY 1996 Authorization Bill. We are also looking at ways to create RABs with communities that are concerned about our Formerly Used Defense Sites, such as in Alaska. RABs help in reviewing and evaluating documents, and recommending priorities among sites or projects. By sharing information with their communities, RAB members improve public confidence and help generate public acceptance of DoD cleanups. For example, the RAB at Fort Detrick, Maryland has been instrumental in addressing the public's fears and misperceptions about past activities at Fort Detrick. By holding meetings and providing information to the public in an open and timely manner, the Army gained greater credibility for its environmental restoration and safety programs.

Setting New Risk Reduction Goals

We are responsible for protecting public health, and to do so we have developed a sequencing tool to ensure that we prioritize our work based on risk to human health and the environment.

Our approach is to evaluate the "relative" risk of sites. In this analysis, the comparative-risk-reduction categories of high, medium and low are employed. The Restoration Advisory Boards help to accomplish these relative risk evaluations. Then other factors, such as stakeholder concerns and project execution factors can be considered so we can determine the sequence of work at the various sites at each installation.

For the DERA program, our future investment guide includes:

- *Reducing the risk at "high" relative risk sites.* These will either be cleaned up to a reduced level of risk or will have a remedial system in place by the end of FY 2007.

- *Reducing the risk at "medium" relative risk sites.* These sites will either be cleaned up to a reduced level of risk or will have a remedial system in place by FY 2011.

- *Eliminating the risk at "low" relative risk sites.* These sites will be cleaned up so they will pose no threat to human health and the environment, or have a remedial system in place by FY 2014.

Using Measures of Merit

Restoration goals are quantified in terms of cost and progress expectations. The measures of merit are analytical evaluators of progress to help us measure success in meeting our goals. Measures of merit are designed to measure actual progress against our long-range plan. Measures of merit have been established that project:

- the rate of relative risk reduction at our sites over several years;

- the rate of progress from analysis to cleanup until the response is complete, and

- the milestone schedule for the cleanup decision-making process.

This is the first time metrics such as these have been used in the cleanup program.

FY 1997 CLEANUP BUDGET

For FY 1997, the Department is requesting $1.3 billion for the Cleanup program. This represents a stable funding level with a consistent commitment, that demonstrates to the public and neighboring communities that DoD intends to fulfill its obligations.

Superfund Reform

At last year's House National Security Committee Readiness and Installations and Facilities Hearing, GAO and CBO were asked to review the existing body of statutory law to examine a proposed range of choices that would responsibly create significant economic benefits without environmental detriment. I'm pleased to report that most of their proposals coincide with the legislative proposals that DoD submitted last year. One of DoD's proposals included in the FY 96 Defense Authorization Act is now law: the long-term BRAC leasing provision at bases requiring cleanup. This provision confirms DoD's authority to enter into multiple year long-term leases while any phase of cleanup is on-going at a BRAC base, and will help create the investment opportunity needed for satisfactory reuse of BRAC sites.

Again this year, the Department of Defense supports the legislative reform of Superfund, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The Department participated fully in developing the Administration's bill for Superfund Reform. We recognize that major changes to the cleanup process will yield faster, more cost effective cleanups and use more realistic assumptions when determining the threat to human health and the environment. Considering future land use in the decision process, focusing more attention on treatment of contamination hot spots, and seeking alternative or innovative ways of addressing the less contaminated areas will also provide more reasonable, cost effective remedies.

We also recognize there are several narrow CERCLA issues unique to the Department that may be appropriately be addressed in the FY 1997 Defense Authorization bill. We intend to approach the other committees that have jurisdiction over CERCLA to enlist their support for legislative proposals addressing these issues.

Let me briefly outline the proposals:

NPL Listing

One Superfund Reform proposal that the Department of Defense recommends would clarify that EPA has the authority to defer NPL listing for DoD sites that are accomplishing cleanup under RCRA corrective action. Some DoD installations have made good progress under RCRA corrective action programs and in these cases, NPL listing will provide limited benefit. EPA currently applies this discretionary authority only at private sites. By clarifying that EPA has this same authority with respect to federal facilities, scarce regulatory as well as federal cleanup resources may be saved.

Base Realignment and Closure (BRAC) Superfund Reforms

The Department is also requesting Superfund reforms that especially would benefit BRAC bases. The first proposal focuses on a definition: it proposes a change to the definition of what constitutes an "uncontaminated" parcel under the Community Environmental Response Facilitation Act (CERFA). Under the current definition, it must be shown that no release has occurred on the parcel, and in addition that no hazardous substances or petroleum products have been stored on the parcel for longer than one year. We believe that this requirement with respect to storage is too restrictive, and that the reference to stored materials should be dropped from the definition. The requirement that there has been no release would remain. EPA or state concurrence would still be required as part of the determination that a parcel is uncontaminated.

In addition, we have included a proposal that will allow DoD to transfer property by deed before the remedy is in place and demonstrated to be operating fully and successfully. Private parties can buy and sell contaminated property, but DoD is currently prohibited from doing so. This prohibition limits the ability to put property at closing bases to productive reuse, because the property cannot be sold, only leased. This reform would allow EPA, at NPL sites, or the Governor of a State, at non-NPL sites, to defer the requirement to have a remedy in place before DoD can transfer property by deed. Importantly, DoD still retains responsibility to accomplish appropriate cleanup at sites caused by our past actions.

Further, we are exploring both legislative and administrative mechanisms to clarify the NPL listing status of "uncontaminated" parcels. We believe that parcels that are uncontaminated under CERFA should not be considered part of a NPL listing. Such parcels do not contribute contaminants that made the site appropriate for listing, and the continued uncertainty over the NPL status of such parcels impedes their beneficial reuse.

BRAC

I want to describe the progress the Department has made in the Base Realignment and Closure (BRAC) Environmental Program using the example of Homestead Air Force Base in Florida, devastated by a hurricane in 1992. Over 97 percent of the base facilities were declared non-functional and the population of the base was reduced from 8720 military and civilian workers to about 200 workers. Placed on the BRAC list in 1993, then Deputy Secretary of Defense William Perry declared Homestead a model base for the BRAC program. Homestead had been used for many years for tactical fighter missions and to maintain supplies, equipment and communications systems. As a result, the base disposed of large quantities of petroleum, oils, and lubricants and hazardous materials that were used in connection with the flightline, mission support, base support and industrial operations.

Elements of the Fast Track Cleanup approach at Homestead included:

- establishing a cleanup team of experts,
- implementing effective community involvement, and
- making clean parcels available for quick reuse, by speeding up the pace of the National Environmental Policy Act (NEPA) process.

The cleanup has included faster document review times, and accelerated cleanup schedules. In addition, consolidating sites into program categories with consistent funding levels has allowed Homestead transfer plans to remain ahead of the fast track schedule.

I am often asked the question -- "Is Fast Track Cleanup really any faster?" I can say yes -- we are cleaning up sites faster, reducing the bureaucratic red tape associated with document reviews, and are also accelerating cleanup schedules through the use of Interim Remedial Actions (IRAs). IRAs minimize and reduce risk to human health and the environment during ongoing investigatory efforts, in other words -- they clean up contamination as it is discovered. These quick actions not only speed property reuse, but also help prevent the spread of further contamination.

In the last two years, the Fast Track program at BRAC 1988, 1991, and 1993 bases has yielded the following results:

- making more than 60 percent of the property environmentally available for transfer,
- accelerating cleanup schedules to make property available for transfer and reuse -- we've saved more than 80 years at 70 installations,
- avoiding more than $100 million in costs by partnering with regulators and involving stakeholders early in the cleanup decision making process, and
- improving community involvement and trust in DoD's cleanups by establishing RABS at 69 BRAC installations.

We have not yet completed our Environmental Baseline Surveys at the BRAC 1995 bases yet, so we don't know how much of that property may be free of environmental constraints. But, of the more than 325 thousand acres at BRAC 1988, 1991, and 1993 bases, more than 195 thousand acres are available from a cleanup standpoint for transfer and reuse.

We will include legislative proposal in the FY 1997 Omnibus Bill to eliminate the Congressional deadlines and reporting requirements for completing remedial investigations/ feasibility studies at BRAC 1988 and 1991 bases. The original deadlines were not met, and so continuing reporting of the progress being made at the bases to complete the studies is required. The reporting requirements increase the red tape associated with the studies, both for DoD and for EPA, and do not accelerate the pace of the cleanups or the base closure process; so we are recommending eliminating the continuing reporting for the studies of these bases.

For FY 1997, the Department is requesting $776 million for BRAC environmental work. The BRAC environmental program, as part of the overall BRAC account, funds more than cleanup efforts. It also includes closure-related environmental compliance and planning related to closing installations. Compliance efforts include such actions as removal of underground storage tanks; closure of hazardous waste treatment, storage and disposal facilities; and abatement of asbestos and lead-base paint.

Conclusion

Last year our nation celebrated the 25th anniversary of Earth Day. The Armed Forces have made great strides in implementing new and useful measures for the protection of our people, our installations and our nation. The addition of ENVVEST, and the regulatory reform proposals will strengthen the public's trust of DoD, lead to higher environmental quality, improve performance, and lower costs. There are no limits to our opportunities to be strong environmental leaders in support of the defense mission.

The command excellence of the Army, Navy, Air Force and Marines in not merely meeting regulatory and management objectives, but in employing internal assessments and self examination to improve the quality of environmental management deserves special recognition. The military tradition of getting things done and pride in the quality of the final product has made the DoD environmental program what it is today.

Perhaps no conclusion is more fitting than the message from the Chairman of the Joint Chiefs of Staff, General John M. Shalikashvilli, which sums up the environmental mission of the Department of Defense and its importance to readiness:

"Each day the men and women of our nation's Armed Forces integrate new environmental techniques and procedures into our operations, protecting our most valuable asset -- our people, and their families. As stewards of the nation's well-being, we realize that ultimately, the security, quality of life, and economic development of our citizenry depend on a healthy environment. . . There is no greater gift we can give to our children."

Mr. BATEMAN. Now I would like to call on Mr. Grumbly, the acting Under Secretary of Energy.

Mr. Grumbly.

STATEMENT OF THOMAS P. GRUMBLY, ACTING UNDER SECRETARY OF ENERGY, U.S. DEPARTMENT OF ENERGY

Mr. GRUMBLY. Thank you very much, Chairman Bateman.

Chairman Bateman, Chairman Spence, Mr. Dellums, members of the subcommittees, I appreciate the opportunity to appear before you. I have a lengthy written statement which I would like to attach or include for the record. The statement outlines an extraordinary number of accomplishments for 1996 as well as a large number of 1997 commitments, and I commend it to your attention.

What I would like to do here, in a very few minutes, is to try to present an overview of the fiscal year 1997 budget. I would like to do that in a very few ways. First of all, I would like to describe who we are. It is a misnomer to say that we are simply a cleanup program. I would like to talk a little bit about what we are asking for; and I would like to just end at that point by giving you a benefit-cost assessment of what the program is getting. I would like to outline a few of the results that we have gotten, and I would also like to talk about some of the cost reduction efforts that we not only have underway but have completed.

Let me begin with who we are. Usually, the DOE program is called the cleanup program. And while this is true in a major sense, and I will show you that in a couple of minutes, we also do a whole lot more than that. In fact, our highest-priority tasks involve the safety and security of more than 25 metric tons of weapons-grade plutonium, enough for thousands of nuclear warheads. As the weapons plants have closed, and all of these plants have come into the environmental management orbit, we have taken on more and more of the materials and responsibilities that have been traditionally under the Defense program's elements of the Department of Energy, and it is important to recognize that we are the largest single repository of special nuclear material outside of the strategic reserve in the United States at the moment.

We also, for example, ensure that the U.S. Navy nuclear warships are sailing by dealing with all of the spent nuclear fuel that comes out of the defense sites in the United States.

As a result, in many ways it is really more apt to describe this program as the nuclear materials safety and security program. It is a cleanup program, but we are doing a whole lot more than simply the traditional cleanup that people think about. We are now responsible for the entire closed portion of the nuclear weapons complex, a closure that has expanded dramatically since 1989, thankfully, as the cold war has come to a close. And it is part of our remaining obligation from fighting the cold war to deal with this in a responsible fashion.

Let me talk a little bit about our fiscal year 1997 budget. For the second straight year, this program is requesting less in budget authority than the previous year. While Chairman Hunter was right in saying that the program ramped up rapidly during the previous administration, since I came in and took over this program 3 years

ago, we have essentially had either flat or declining budget requests, with additional responsibilities every year.

The current 1997 budget is $5.87 billion as a total budget. About $5.4 billion of that falls within the purview of the 050 accounts, or the defense accounts. That is a reduction of 3.4 percent from what was appropriated and authorized last year.

In addition to this, an additional $182 million is being proposed under the general provisions of the Appropriations Act in the administration's fiscal year 1997 budget to support privatization activities at our sites, and as a result, if you add up the total resources that are being proposed, it is $6.06 billion both inside and outside the Department of Energy budget.

The chairman and others on this committee have voiced concerns over Environmental Management [EM's] cost and progress. We have heard those concerns and respect them, and in order to show how we have aggressively addressed those concerns, I would like to look at our results, if I could have the one chart that I brought with me, please.

In the cleanup area, in the area that most resembles the Superfund area, we are getting real results on a massive scale. We are shoveling dirt instead of paper. You can see that when we came in at the beginning of this administration, by necessity, in some respects, over 50 percent of the money we were spending was going to studies. In the fiscal year 1997 budget that we are proposing 67 percent of the money that is spent in the Environmental Restoration Program will go to actual cleanup on the ground. So we have turned the corner in terms of how the money is spent in the environmental restoration part of this program in a big-time way.

We started operations, in addition to this, at the largest waste treatment plant in the world 2 weeks ago—that is the Savannah River site in South Carolina. And right now as we are sitting here, we are converting unsafe liquid high-level nuclear waste to safer solid glass that is ultimately ready for disposal.

We restarted the Savannah River site reprocessing canyons and have stabilized already 20 percent of the liquid plutonium nitrate solutions that pose a threat of an uncontrolled nuclear reaction unless they are dealt with.

We have completed 75 large-scale environmental cleanups in fiscal year 1995, a 134-percent increase over fiscal year 1994; nearly 200 are done, and 500 are left to go.

We completed 119 removal actions, which Mr. Rezendes talked about, 17 decommissioning actions, and we cleaned up uranium mill tailings at 5,000 residences.

We moved over 5 million cubic yards of mill tailings, soil, and rubble during the last fiscal year, which has been stabilized, contained, or otherwise addressed. This is enough to fill a 2.5-foot-diameter pipe from Newport News, VA to San Diego, CA and back again.

Let me talk a little bit about how we are reducing the costs in this program, because that is an area that people are always concerned about.

In 1993 when we took over, the last administration projected an annual budget of $8.5 billion by the year 2000. We have dramatically reduced the cost of doing business. In 1997, we will meet all

of our environmental compliance obligations with less than $6 billion, and that is a major decrease in the amount of resources that are necessary.

Over the last year, we have reduced our support service costs by 55 percent and headquarters funding by 36 percent, and our contractor work force has declined by over 20,000 in the last couple of years.

We have cut duplicative oversight by eliminating 156 DOE orders. We have granted more decisionmaking authority to our field managers and reduced headquarters oversight. We have reduced the level of uncosted balances by over $1 billion in the last 2 years. I know this is an issue of concern to the Congress; Chairman Hunter talked about it, as well as Mr. Rezendes. I want to explain what "uncosted obligations" are.

They are not free money, but they are already obligated for specific projects. They are costed when the project is complete and the bill is submitted by the contractor. It is as though I were a homeowner and you were a contractor; I estimate how much it is going to cost to fix my house; the contractor comes in with an estimate of $100,000. The money is obligated at $100,000, but the money is not costed until the contractor comes back with his bill, $99,800, $103,000, whatever it is. So it is an obligation; it is not unobligated money. As a result, when we take uncosted balances out of the account, we are essentially robbing Peter to pay Paul. We are robbing projects that are already covered with funds to move them with other projects.

We reported our uncosted balances to the staff of congressional committees and GAO. I think there is some agreement on the methodology we are using and progress in reducing our uncosted balances by nearly 40 percent over the last 2 fiscal years.

We have proposed $150 million in unobligated balances this year because we are still 2 percent over the informal GAO guideline in operating costs of between 8 and 12 percent; we expect we will have 14 percent in the unobligated, so we are proposing $150 million to use for the future. And in fact other congressional committees have expressed concern that we may have reduced our uncosted balance level by too much.

Contract reforms have already been vital to progress. We have rewarded saving money, not spending it. Our contractors have pledged and gotten savings of approximately $2 billion. New contracts at the Idaho National Engineering Laboratory and Rocky Flats are two specific examples, and there will be new contracts soon at both the Savannah River site and the Hanford site that will involve saving major additional sums of money.

We have also made progress on privatization. We are proposing the largest privatized waste management operation ever at the Hanford Tank Remediation Project. We have released a request for proposals. Our history to date in this area of privatization is that we have made somewhere between 30 and 40 percent savings on each of the privatized projects that we have in the complex, and we think there are major ways to save money if we do this right.

We know that we are on the right track because we have received substantial interest from private industry to make this happen, and we intend to go forward in awarding contracts after the

Congress has given some indication of support for this concept in our fiscal year 1997 budget.

In conclusion, we think that over the last 3 years, we are well on the road to maximizing efficiency in cutting costs. We have realigned work forces. We have modified multiyear and multi-billion-dollar contracts, and we have imposed strict discipline on financial procedures.

I think that further reductions in our budget will mean increased risks and higher long-term costs for what we do. The results from the changes that we have implemented have arrived and will with a stable budget continue.

We ask for your full support for our budget request to continue our progress in this vital program. We thank you for your consideration and look forward to your questions.

[The prepared statement of Mr. Grumbly follows:]

Statement of Thomas P. Grumbly

Assistant Secretary for Environmental Management
Department of Energy

before the

Military Readiness Subcommittee
and the
Military Procurement Subcommittee
of the

Committee on National Security

U.S. House of Representatives

March 21, 1996

Mr. Chairman, and Members of both Subcommittees, I appreciate this opportunity to appear before you to discuss the Department of Energy's Environmental Management (EM) program and its Fiscal Year (FY) 1997 budget request. Last year I appeared before you to say that we had "turned the corner" on addressing the legacy left behind by fifty years of nuclear weapons production. This year I am pleased to report real results -- not only results "on the ground" -- but also in a new way of doing business. Clearly, we still have a long way to go; but, we are on our way.

Today I would like to:

- Describe the Environmental Management program and present some of our significant accomplishments from the past few years.
- Present an analysis of the budget requests for each program area, explaining the major activities and accomplishments for each program.
- Review our commitments for our Fiscal Year 1997 budget, and outline the strategy and vision for the future of this program and its mission.

Introduction

For the second straight year, in Fiscal Year 1997, the Department is submitting a budget for the Environmental Management program that represents a reduction from the previous year given a comparable scope of work. Under our proposed Fiscal Year 1997 budget, we will continue to contribute to a leaner federal government by doing more work with less money. We have succeeded in driving down the costs of our program while increasing our productivity. We implemented enormous changes in the program when I took this job in 1993 and

the results of those changes are well represented in this budget. Our Environmental Management Fiscal Year 1997 budget request under the Defense Environmental Restoration and Waste Management appropriation aggressively addresses and minimizes risk to workers, the public and the environment; effectively prioritizes and sequences work covered by Federal and State agreements to incorporate relative risk; invests in mortgage reduction opportunities to continue to reduce the overall cost of the material and facilities within the Environmental Management program; and focuses on obtaining measurable results.

The Department is requesting $5,409,310,000 in new budget authority for Fiscal Year 1997, $57,100,000 less than the enacted Fiscal Year 1996 appropriation. This request represents a 1 percent reduction in funding from Fiscal Year 1996. An additional $182 million is being proposed in the government wide general provisions in the *Appendix* volume of the President's Fiscal Year 1997 Budget to provide up-front funding for additional Environmental Management privatization efforts. This request, in addition to the direct budget request for the Department's Environmental Management program, will support our efforts to privatize certain operations to save money through a new way of doing business.

Included in this year's budget request is significant funding for privatizing a number of operations, including the largest privatized operation ever undertaken -- the Hanford Tank Waste Remediation. We intend to release the draft Environmental Impact Statement in the next couple of weeks with a

preferred alternative that reflects our legal commitments and our commitment to the health and environment of the Pacific Northwest. As you know, we have already released a Request for Proposals for this bold new initiative and have received substantial interest from private industry. We intend to go forward with the awarding of a contract for this initiative after Congress has given some indication of support for our Fiscal Year 1997 budget. We hope that Congress will expeditiously support our entire Fiscal Year 1997 budget, and will particularly support our privatization initiatives.

While we believe we can continue to meet our goals and achieve significant reductions, there are limits to how much our budget can be reduced without sacrificing results. Roughly 65 percent of our budget is driven by the legal and moral obligation to comply with applicable laws and agreements. Moreover, our basic responsibilities -- securely storing the essential elements of nuclear weapons production and reducing the environmental mortgage of the Cold War -- demand that we continue to meet our obligations as completely and cost-effectively as possible.

Background on the Environmental Management Program

The name "Environmental Management" may be a misnomer when one considers what the program does in contrast to the term commonly used to refer to the program -- "cleanup". Some of the highest priority tasks have little to do with what one traditionally thinks of as "cleanup". Moreover, the meaning of the word "cleanup" suggests that we are getting rid of the waste and contamination. While in some cases we do dispose of the waste, in others it is neither

technically possible or prudent from a safety or financial perspective to attempt to "get rid of" the waste and contamination. Because the program typically deals with radioactive materials with fixed, and sometimes long "half-lives" (a "half-life" is the period it takes for half of a material to decay to another form) it is technically impossible to simply get rid of the problem. The program can put it in containers, treat it, solidify it, but cannot "get rid of it" in the same manner as some hazardous organic chemicals, which can be broken down into their constituent parts. Hence, a name such as "Nuclear Materials Safety and Stewardship" program may be more apt than "Environmental Management."

The industrial infrastructure used for producing and maintaining our nation's nuclear weapons deterrent was massive. Factories, laboratories, and thousands of square miles of land were devoted to the successful enterprise of producing tens of thousands of nuclear weapons in the name of national security. This enormous infrastructure still exists and is largely being maintained by the Environmental Management program.

It is difficult to communicate the size and variety of the tasks being addressed by the Environmental Management program. A map of the facilities for which the Environmental Management program is now responsible includes the basic facilities used for weapons material production -- the Savannah River Site, the Hanford Site, the Idaho National Engineering Laboratory, the Rocky Flats Environmental Technology Site -- as well as numerous smaller facilities: Tonawanda, Fernald and old uranium mill tailings sites. Like most industrial

efforts, the nuclear weapons complex generated waste. The problems posed by the weapons complex, however, are unique as they include unprecedented volumes of contaminated soil and water, radiological hazards from special nuclear materials, and a vast number of contaminated structures ranging from chemical plants to evaporation ponds. Also, the business practices used during production of nuclear weapons are no longer appropriate.

Last year, we estimated the cost for stabilizing and cleaning up these facilities to be approximately $200 billion with a range of $170 to $350 billion, depending on the expected future land use and project efficiency. We are now completing a more detailed update of that estimate. This effort should provide a much better estimate because of improved life-cycle cost analysis capabilities in field offices. We are using these results to help drive down the life-cycle costs of the program. Regardless of the specific details, it is clear that it is the largest environmental stewardship program in the world. It is also clear that this challenge warrants serious attention to the technologies and business methods necessary to ensure that the job is done in the smartest and most cost-effective manner possible.

As a result of the abrupt cessation of new nuclear weapons production operations in the late 1980's, we not only have inherited a legacy of thousands of contaminated areas and buildings, and huge waste volumes, but we also have responsibility for large amounts of nuclear materials still "in the pipeline" of their production processes. For example, the program stores more than 25 metric tons of plutonium, which pose extraordinary safety and security

obligations. This quantity of plutonium is sufficient to fabricate thousands of nuclear weapons, so the security as well as the safety of this material is of paramount importance. Moreover, plutonium can spontaneously ignite in contact with moist air in certain circumstances, thereby requiring careful attention to handling and storage safety. We believe that our primary job is to address these most immediate, urgent risks to human health and the environment as well as manage the long-term contamination and safety threats, reducing the long-term mortgage passed on to others.

We are the "landlord" of numerous large sites around the country, some of them are essentially small cities. This means that roads, electrical power, food services for employees, fire and emergency services -- everything that it takes to safely and efficiently manage these sites -- are our responsibility.

The Environmental Management program manages risks and addresses issues such as:

- hundreds of large, underground high-level radioactive waste tanks, some of which have leaked, and some of which may pose a danger of an explosion unless properly managed;
- the need for security to prevent theft or diversion of nuclear weapons material (e.g., plutonium and highly enriched uranium) and sabotage of nuclear facilities;
- vast quantities of surplus nuclear weapons material which need to be stabilized since they pose a risk to the public, our workers and the environment in their current state;

- thousands of metric tons of highly radioactive spent nuclear fuel, some corroding in various types of storage;
- thousands of radioactively contaminated buildings that must be deactivated and eventually decontaminated;
- contaminated drinking water, soils, and surface water;
- the potential for worker exposure to radiation and chemicals; and
- the need to safely transport large amounts of hazardous materials, on-site or between sites.

Establishing priorities among such diverse risks and complex requirements has proven to be a major managerial and technical challenge. We are proud of our accomplishments in this area. In budget terms, this means that funding is required simply to prevent risks from emerging or increasing. Additional funding is required to further eliminate the source of potential risks -- the untreated wastes and nuclear materials. This work does not occur in a regulatory vacuum. As a federal entity, we have significant legal and regulatory obligations. In addition to federal and state environmental and safety laws and regulations, this program operates within a complicated framework of other commitments and expectations, which include the following:

- Defense Nuclear Facilities Safety Board Recommendations;
- Worker safety and health protection expectations derived from nuclear industry practices and Departmental orders;
- Short- and long-term technology development needs;
- International Atomic Energy Agency nuclear nonproliferation safeguards requirements;

- Compliance agreements or court orders; and
- Worker and community transition needs (e.g., training and land reuse).

Finding cost-effective ways to address these issues now rather than deferring solutions to later generations has been the goal of Congress and this program. In fact, this notion of "responsible stewardship" was one of the primary issues raised by the National Academy of Sciences (NAS) in their recent review of the Environmental Management program. As part of our efforts to ensure that we are moving in the right direction, I requested the NAS to review the overall Environmental Management program and to make recommendations for improvement. I welcome their findings and recommendations, recently released in the report, Improving the Environment. The NAS focused on priority setting, science and technology issues, and regulatory measures. They concluded that a number of our program's initiatives "are rapidly introducing change into a system that was established during the Cold War" and that our "principles and general direction are encouraging." Despite the strides we have made, the NAS points out -- and we in the Environmental Management program acknowledge -- areas that need improvement. Next week, we will provide a formal response to the NAS report, including specific plans to continue improving the management of this program. The Environmental Management program is committed to, and is increasingly successful in, cost-effectively addressing the environmental and safety problems of the Cold War legacy.

Progress in Accelerating Cleanup and Cutting Bureaucracy.

This program, like many government programs, has had its share of startup problems. Not created from whole cloth but assembled from ongoing duties and budgets of existing Department of Energy programs, the Environmental Management program was initially ill-equipped to handle its tasks. The Environmental Management program has grown since its creation in 1989, largely through the addition of responsibility for newly declared surplus facilities. In 1989, the program assumed full responsibility for Fernald. Soon Hanford, and the Idaho National Engineering Laboratory, were added to the program. In 1993, the Rocky Flats Plant was added. And last year the Mound Site, the Pinellas Plant, and most of the Savannah River Site were added to the overall management responsibilities of the Environmental Management program. Now, the facilities under this program's purview are located in more than a dozen states and cover more than a thousand square miles. In 1993, the Environmental Management program established six strategic goals both to guide our efforts and to serve as yardsticks for measuring progress.

The six goals are:

- to eliminate and manage urgent risks;
- to assure worker safety;
- to improve managerial and financial control;
- to demonstrate tangible results;
- to focus technology development to get results; and
- to establish a stronger partnership through greater public involvement in Departmental decisions.

These goals, that I established when I arrived, have brought tangible results, including shedding inappropriate contracting and operating practices of the past, cutting unnecessary overhead, and getting real results in reducing risks. Since October 1993, we have reduced the number of contract employees by 20,000 to better fit our workforce with the mission and reflect our budget levels.

Let me report to you some specific examples of meeting goals.

GOAL 1: Reduce Urgent Risks

In 1993, we identified three urgent risks that existed at several sites: unstable plutonium, high level waste tanks, and corroded spent nuclear fuel and targets. Each of these was very serious and could have resulted in a catastrophic accident or serious worker injury without focused attention. We have succeeded in eliminating, or taken the initial steps toward elimination of, each of these urgent risks.

- The Savannah River Site Defense Waste Processing Facility -- the largest high level nuclear waste vitrification facility in the world -- started operations on March 12, 1996.

- At the Savannah River Site, we restarted the F-canyon and have stabilized over 20% of the liquid plutonium nitrate solutions, which posed a threat of a criticality or leakage if left unaddressed.

- Also at the Savannah River Site, we restarted the dissolution operation and began dissolving and reprocessing the Mark 31 targets, which are among the most corroded materials in storage.

- We have made substantial progress at Rocky Flats towards stabilizing the unstable plutonium that has been stored in glove boxes since production shut down in 1989. For example, workers have treated approximately 26 kilograms of unstable plutonium metal and oxides in a controlled oxidation furnace, which creates a stable form for interim storage awaiting final disposition. Only five additional kilograms remain to be stabilized.

- At the Hanford Site in Washington, we have virtually eliminated the risk of a tank explosion from the buildup of flammable gases by installing a state of the art pump, which has exceeded design expectations in its first two years of operation.

- Risks from the unknown are almost as great as the risks we do know about from these high-level liquid waste tanks at Hanford. We have made substantial progress toward characterizing the waste in these tanks, which are much less well known than the waste in the tanks at the Savannah River Site. Characterizing the waste is necessary before treating it. Recently, some have criticized the Department for not meeting our characterization goals. What many of our critics fail to understand, however, is that this operation involves cutting-edge

science and engineering, and is extremely hazardous in an area with little room for error. I will not sacrifice worker safety to meet artificial quotas. Nonetheless, I am happy to report that after completing our initial learning and technology development experience, we are making much more rapid progress toward the characterization of these tanks.

- Also, at Rocky Flats, we have stabilized approximately 1,900 liters out of 31,000 liters of plutonium solutions. To eliminate the generation of flammable hydrogen and to remove organic compounds which could become flammable, workers have safely repackaged 177 of 222 plutonium metal units that were in contact with plastic and are currently in the process of repackaging approximately 1,600 units that are in proximity to plastic.

- At Hanford, we have developed and begun using two technologies to stabilize plutonium materials more quickly and less expensively than with traditional processing methods. We have completed the stabilization of reactive plutonium scrap and incinerator ash.

- We have completed the venting/repackaging of plutonium-238 solids at the Savannah River Site as recommended in the Department's Plutonium Vulnerability Study.

- In compliance with a consent order to the State of Idaho, the second lot

of 189 spent fuel units were transferred from inadequate storage facilities to ones meeting current safety standards three months ahead of schedule. And we are well on our way to finishing the transfer of the last lot of spent fuel to proper storage facilities.

- We began stabilizing approximately 80,000 gallons of plutonium solutions, the highest risk nuclear materials at the Savannah River Site, into a safer form.

- More than 2,060 residue drums were vented to eliminate pressure build up and flammable hydrogen accumulation at Rocky Flats.

Vulnerability assessments led by the Office of Environment, Safety and Health identified shortcomings in the way we handle spent fuel, plutonium and hazardous chemicals that could affect the public or worker health or the environment. Overall, 281 of 503 corrective actions identified in the spent fuel report have been completed and 64 of 152 plutonium milestones have been met. As we noted with the example of the Hanford K-basins, we are aggressively developing actions and implementing them to remediate the most urgent risks in the complex.

The Office of Environment, Safety and Health's independent oversight program has also been extremely useful in effectively targeting risk. The comprehensive assessments have provided DOE management with validated, professional appraisals of the site's performance, greatly aiding our ability

to target resources to areas of greatest risk to workers, the public, and the environment. The foundation of the new approach is an analytic framework or "template" that clearly articulates the principles and operational elements of sound Environment, Safety and Health management programs. The assessments have identified where we are doing well, where we have to work harder, and also aid in spreading good practices among our sites.

GOAL 2: Emphasize Health and Safety for Workers and the Public

Along with working to protect public health and the environment, protecting the safety of our workers is the highest priority. It would be unacceptable to sacrifice worker health and safety in an effort to protect the public health and the environment for future generations. Our workers face risks unlike any others in this country, and we owe them -- many of whom are also veterans of the Cold War -- a large debt of gratitude. Recognizing the critical role site workers play in our success, we have refocused efforts to ensure a safe and healthful workplace. Three years ago, the rate of lost work days was about 59 per 200,000 person-hours in Environmental Management operations. Today, we have cut that figure by 45 percent. This means not only fewer individuals injured but also a more productive working environment. By focusing managers and training workers, and by discarding duplicative and cumbersome orders, we have been able to get more work done in a safer manner.

The Office of Environmental Management has worked in partnership with the Office of Environment, Safety and Health to provide line program managers with

tools to manage safety at our facilities more effectively and at less cost to the taxpayers. Through several joint projects, we have shown that we can do our work better, more safely, and at less cost by integrating safety and health professionals into the planning and execution of our work. We view safety as an asset that allows us to target our most urgent risks, use our limited resources most efficiently, and do our work most effectively.

At Fernald, for example, we avoided nearly $2 million in costs by recognizing and avoiding unnecessary work. This was because safety and health personnel worked side by side with engineers, planners, and other workers to "build in" safety and health concerns during the actual planning of work. In much the same way, we saved $500,000 through early identification and control of hazards at a Hanford plant. We expect this approach to become standard practice throughout the DOE complex and continue to save money while safeguarding worker health and safety.

Some of the Department's rules and orders no longer meet the needs of many of our facilities. These "top down" orders were developed to meet the needs of a stable weapons production system. Deactivation, decontamination, decommissioning, and environmental cleanup, on the other hand, involve hundreds of individual tasks in aging facilities with hazards that are unknown and difficult to predict. A new process -- the "Necessary and Sufficient Process" -- provides a graded approach to safety standards that allows us to tailor the standards to the work and the facilities. In a pilot application of this process at a major Hanford facility, we were able to greatly reduce

worker exposure while cutting costs by 50 percent. We hope to use this process to proceed with safe and timely stabilization of facilities at Rocky Flats and other locations throughout the DOE complex.

We are meeting our worker safety goals and we continue to monitor worker health. For example, the Environmental Management program received an award in 1995 from the State of Ohio for two million person hours worked without a lost time accident at Fernald. The Savannah River Site recorded 9.5 million person hours without a lost work day due to an on-the-job injury. At Hanford, we completed removal and disposal of highly irradiated reactor fuel spacers from underground silos to reduce exposures to deactivation workers at N area. Recently, however, we were soberly reminded that there is more progress to be made in this area. At the Idaho site, a worker died from a fall from construction scaffolding. These tragedies must motivate us to redouble our efforts to provide a safe and healthful workplace.

GOAL 3: Bring the Program into Managerial and Financial Control

One of the most significant achievements of the Office of Environmental Management is that we have brought more budgetary and bureaucratic discipline to this program. The first budget for this office, in 1989, was $440 million; it rose to $880 million the following year; $1.3 billion in 1991; then $2.6 billion, and soon was over $6 billion a year with projections for increases to more than $10 billion per year by the 2000. By the time I took this job in 1993, this program was in real need of financial restraint. My predecessor,

Leo Duffy, intuitively estimated in December 1992 that one out of three dollars was being wasted. Several months later, the results of a study we commissioned in early 1993 indicated that he was right. The data indicated that our project management costs were substantially higher than both comparable private sector projects and comparable government projects. This situation was unacceptable. Beginning in 1993, we made cost reduction one of the highest priorities.

First, the Administration imposed an overall cap on the growth in the budget for this program. Then we reduced the budget, in real terms. For example, last year's budget request was, in reality, a 4 percent reduction in the budget when viewed against the added responsibilities of managing several of the largest and most complicated former defense nuclear sites. Responsibility for the Savannah River Site, the Mound facility, and the Pinellas Plant were all transferred to our program in 1995. This is clear evidence that the program is committed to doing more with less.

Second, we have integrated information about risks to public health, worker safety, and the environment into the Fiscal Year 1998 budget formulation process. In doing so, we have made an effort to balance risk information with other factors that must be taken into account when setting priorities, making decisions, and allocating resources.

In 1993, Congress was concerned about how the Department was addressing its most pressing problems and establishing priorities among competing

environmental management requirements and budgets, and required the Department of Energy to submit a risk report. The Department responded with the draft report, Risks and the Risk Debate: Searching for Common Ground, The First Step, which provides an analysis of the current and proposed risk management activities initiated to reduce risk and fulfill compliance requirements. The report evaluated risks to the health and safety of individual members of the public intended to be addressed by cleanup activities required by compliance agreements. The report also evaluated the health and safety effect of, and the cost associated with, implementing the requirements.

This report provided the first link between budget, compliance agreements and risk activities. Department of Energy field program managers with the relevant expertise categorized the environmental management work. This allowed the Department to understand the spectrum of risks associated with environmental management activities and linked the risks in a qualitative fashion to compliance and budget. After submission of the report in June 1995, with the advice of our external Environmental Management Advisory Board, we began the process of integrating information about risks to public health, worker safety, and the environment into our budget formulation. This process is iterative, and will continue and improve each year as we more fully involve stakeholders and peer reviewers.

Third, we set an immediate goal of a 20 percent increase in measurable productivity; a goal that most Fortune 500 companies would find ambitious. This initial productivity challenge was across-the-board in Fiscal Year 1994.

We then set additional productivity goals for individual sites based on their effective use of additional project managers and cost-engineering personnel. We believe we have eliminated most of the "fat" from the program we inherited in 1993.

Fourth, to ensure long-term and systemic improvement in productivity, we began a contract reform initiative to provide incentives appropriate for the new mission. Much of the problem, we have learned, was that the workforce and contracting methods used in the past were simply inappropriate for the new mission of Environmental Management. We also recognized that the skill mix of the workforce for the new mission at many sites was out of balance, and we undertook a significant reduction in unneeded contractor workforces. As this Subcommittee understands, contract employees comprise most of the personnel at our sites. We have had to cut contractor workforces from a level of approximately 50,000 in 1993 to around 30,000 today. We know that this downsizing has been painful for individuals, families and local economies. We have complied with the letter and the spirit of the requirements of section 3161 of the National Defense Authorization Act for Fiscal Year 1993 to ensure that the contributions of these "veterans of the Cold War" are not forgotten. But times have changed dramatically, and the current and future missions of the Department demand a contractor workforce with the appropriate skills and of the right size. But we also recognize that we must bring stability to our sites. I want to emphasize again that it is critical that the Congress appropriate all of the President's budget request.

Our contract reform initiative has also been vital to making the transition from a Cold War system to the new missions at many of these sites. Through this initiative, we have fundamentally changed the way contracts are written and awarded for our sites. The tradition of a single prime Management & Operating contractor working at a site for decades, on a cost-plus award fee basis, was dictated by Cold War production imperatives. Today's imperatives are efficiency, progress, and accountability. Our new contracts reward contractor performance. Performance is measured through cost control, safety and real on-the-ground results.

For example, the recently awarded Rocky Flats contract establishes specific results and goals for the contractor, and the contractor will be paid based on the achievement of these results. Fully 85 percent of the contractor's fees will be based on performance, while only 15 percent is base fee. The Rocky Flats contract also provides substantial incentives for cost savings by the contractor. Upon validation by the Department of these cost savings, the contractor will receive 35 percent of the cost savings, with half of those savings going directly to employees.

These new types of contracts will also save money because they are awarded competitively. Within the past two years, the Department has initiated competitions for its for-profit contracts at five of its major sites -- Idaho National Engineering Laboratory, Rocky Flats, the Nevada Test Site, the Savannah River Site, and Hanford. Contractors have pledged savings of approximately two billion dollars in the first two competitively awarded

procurements alone -- the Idaho National Engineering Laboratory and the Rocky Flats Environmental Technology Site. In addition, we have changed the way characterization studies and site assessments are handled in the contracts, so that emphasis is placed on doing the actual work, not simply studying the problem. New streamlined study procedures will ensure that problems are properly assessed, without unnecessary research that takes time and costs money.

Much of the recent work we have done to reform contracts and improve efficiency is still in the "predicted" or "expected" stage. However, we already have indications that these changes are working. For example, by relying on off-site, private disposal services for the sanitary waste disposal activities at our Savannah River Site, we saved $34 million because we eliminated the need to construct a new facility. At our Hanford site, we reduced financial, administrative, and information management functions which allowed a savings of approximately $60 million. These are real and significant savings, and are indicative of the expectations we have for the future, and demonstrate the real need we have for change.

In addition to these new site management contracts, we have also made good on our commitment to privatize certain operations where it makes financial and programmatic sense. In the past two months, we have released Requests for Proposal to privatize major waste treatment facilities at the Hanford, and Idaho sites. In both of these efforts, the contractor will not be paid until the treated waste is actually delivered from a predetermined mixture of raw

waste feed.

We are also, partly at the insistence of the Congress, capitalizing on opportunities to change the way we carry out administrative programs. We have reduced our headquarters expenditures by over 36 percent, or $140 million, in the last year. This is a 50 percent reduction in support services contracts since Fiscal Year 1995. We believe this reduction was absolutely necessary and appropriate. It also reflects a cut in headquarters staffing, which will result in more than a 40 percent reduction in five years. However, we cannot perform the analytical work worthy of this technologically complex and unprecedented program if we reduce these investments in support services any further. We have also streamlined the Environmental Impact Statement process with a goal of reducing process time from 33 months to 15 months, saving an estimated $26 million over five years. The Department received the 1995 Federal Environmental Quality Award for this effort.

We have substantially reduced the level of our uncosted balances. Uncosted balances are typically the result of standard project accounting, withheld contractor funds until actions are completed, or scheduling slippages to obtain permits. During the last two years, we have achieved a reduction of more than a billion dollars in the level of uncosted balances carried by the program, particularly in the operating and capital equipment budget accounts. We understand that uncosted balances have been an issue of concern to Congress. It must be understood, however, that substantial cuts cannot be taken painlessly by reducing uncosted balances. Uncosted obligations are not

"free money" as some believe. These funds are fully committed to ongoing or planned cleanup activity. We are continuing to reduce our uncosted obligations and our current balances are less than previous years. All of these funds have been "obligated" for specific projects, but they will only be "costed" when the project is complete and the bill is submitted by the contractor. When our bills come due, we have to pay them.

Recently, the Office of Environmental Management reported its uncosted balances to staffs of several Congressional Committees and the General Accounting Office. We believe that our methodology was accepted and understood by the Congressional staffs. They applauded the progress that Environmental Management has made in reducing its uncosted balances by nearly 40 percent over the last two fiscal years. Some Congressional committees have expressed concern that we may have reduced our uncosted balance level too much.

Finally, we have undertaken intensive efforts to wring out as much savings as possible at each major site through the use of a management technique known as "work-outs." These involve assembling all of the necessary information and analysis, with the principal decision-makers related to a site, and addressing each of the perceived stumbling blocks to progress, one at a time. The first of the these work-outs focused on the Hanford site, and was heralded by all sides -- the State of Washington, the United States Environmental Protection Agency, contractors, site management and Headquarters DOE management - as the breakthrough "St. Louis Blueprint for Action" after the city where it was

held. One product from the session was the establishment of a tentative agreement to amend the Hanford Tri-Party Agreement to provide for a single regulator concept. The idea was that only one regulatory agency will be involved in the day-to-day oversight and decision making on specific environmental management decisions.

Another work-out session, for the Savannah River Site, was held in Rock Hill, South Carolina. In this session, the parties agreed to define and implement strategies and tactics to streamline, simplify and improve the effectiveness of the Site's interaction with its regulators. For example, the parties agreed in principle to: a more collaborative approach in establishing and meeting cleanup objectives; adoption of the lead regulator concept for RCRA permitted cleanup; and minimizing duplication between RCRA and CERCLA requirements. Agreement was reached on specific productivity enhancement proposals with savings that could be applied to other site functions. Related cost savings could range from $65 million to $130 million. It is expected that these savings, in part or in whole, would carry over into the out years and depending on the pace of implementation, should yield some savings in Fiscal Year 1996. I am pleased to report that all sides are living up to their commitments in the Rock Hill agreement, resulting in substantial improvements in the operation of the Savannah River Site.

GOAL 4: Demonstrate Results

The Environmental Management program has also proven that it can establish

priorities based on risk and get tangible cleanup results for the taxpayers' dollars. We have formally integrated risk-based approaches into our work by mandating that risk prioritization be conducted as part of our site budget guidance. Site managers must now assess the risks at their sites, and develop their budgets accordingly. I would like to call to your attention some of our accomplishments in the last year, both nationally and at specific sites.

Nationally we have:

- Completed 1,225 release sites, making the total of completed sites 2,538, nearly 30 percent of the estimated total number of 8,854 to be remediated. We completed remediation of 25 facilities, making a total of 182 completed facilities, or 20 percent of the 978 facilities that have been accepted into the cleanup program.

- Entered into 29 Consent Orders under the Federal Facility Compliance Act with authorized regulatory agencies for 32 of the 35 sites for which DOE submitted Site Treatment Plans. The cooperative process has resulted in an integrated treatment system across the complex. Through this effort, the estimated costs for treatment were reduced by $600 million. In the near term, we will continue to work with the States to finalize remaining Site Treatment Plans and Orders. In the long-term, we plan to continue the cooperative process and build on the progress that has been made between the Department, its regulators, and the public.

- Completed 119 interim actions, 75 larger-scale cleanups and 17 decommissioning actions, resulting in 5 million cubic yards of mill tailings, soil, and rubble stabilized, contained, or otherwise addressed. To put this in perspective, this amount is enough to cover a hole the size of a football field half a mile deep.

- In Fiscal Year 1995, completed remediation of 6 former industrial processing sites under the Formerly Utilized Sites Remedial Action Program (FUSRAP) and vicinity properties (with 22 out of 46 in the program now complete), and 2 sites where uranium mining and milling once occurred. Remediation of 16 out of 24 Uranium Mill Tailings Remedial Action Project (UMTRA) processing sites is now complete. Remediation was also completed at 57 public and private properties contaminated with uranium tailings from these former processing sites. In addition, three other small sites not included in the FUSRAP or UMTRA programs were completed.

- Continued ongoing treatment of wastewater and hazardous waste at Department sites. We have prepared for disposal 270 cubic meters of transuranic waste, treated 3,500 cubic meters of low-level waste, mixed waste, and disposed of 46,000 cubic meters of low-level waste.

- Since its inception, the technology development program has developed a portfolio of 170 new or improved technologies. An ongoing review of 37 of these new technologies revealed that, depending upon the degree of

cleanup, at least $15 billion and as much as $20 billion could potentially be saved through the use of just these 37 processes.

At the Hanford Site in Washington, we:

- Consolidated special nuclear material for storage and surveillance, providing cost savings of $2.5 million.

- Removed over 56,000 pounds of carbon tetrachloride from the soil above the ground water, and treated 17 million gallons of groundwater in Fiscal Year 1995.

- Recycled the condensate water in the evaporator system at Hanford and reduced the mixed radioactive liquid waste generation by almost 200,000 gallons per year resulting in an annual savings of $3.6 million. The evaporator is expected to continue in operation for the next ten years.

- Saved $40 million in waste treatment and facility maintenance costs by shipping 185,000 gallons of uranium-contaminated nitric acid from Hanford for reuse in Sellafield, England.

At the Savannah River Site in South Carolina, we:

- Reduced radioactive and hazardous waste generation for a savings of $4.6 million in disposal costs.

- Approved and started radioactive operations at the In-Tank Precipitation

Facility. This system is an essential part of treating the 34 million gallons of liquid high-level radioactive waste at the site. It separates the highly radioactive portions of the waste from the low level portions. The low level portion, which constitutes about 90 percent of the volume, is then transferred to the saltstone facility for treatment. The high level portion is being vitrified.

- Transferred 24,000 gallons of high level waste on February 29, 1995 from the In-Tank Precipitation Facility to the Saltstone Facility.

At the Rocky Flats Environmental Technology Site in Colorado, we:

- Emptied the last of five contaminated solar ponds in January, which were filled with low-level radioactive process water.

- Completed construction of a new Centralized Waste Storage Facility five months ahead of schedule and $500,000 under budget.

- Completed venting and aspiration of 518 drums of transuranic and mixed transuranic wastes, leaving 700 to be vented.

At the Mound Plant in Ohio, we:

- Decontaminated, decommissioned and completely removed the 18,000 square foot Special Metallurgical Building previously used as a radio chemical laboratory primarily processing plutonium-238.

- Made available approximately 10 percent of the Mound plant land area (29 acres) for sale or title transfer by obtaining U.S. Environmental Protection Agency and Ohio Environmental Protection Agency concurrence that the land met an industrial risk scenario protective of human health and the environment.

At the Fernald Site in Ohio, we:

- Completed all major Environmental Restoration milestones on or ahead of schedule, including several major removal actions (Plant 1 Ore Silos, Fire Training Facility, Plant 7).

- Determined through successful public involvement future land use, site cleanup levels, on and off-site waste disposal locations, and cleanup priorities.

At the Idaho National Engineering Laboratory, we:

- Deactivated 2 key buildings at the Idaho Chemical Processing Plant (ICPP), saving out-year cost of $24.5 million.

- Demonstrated at full scale the Dig Face Characterization system, an innovative new technology that provides quick, non-intrusive characterization of buried waste in support of retrieval operations. This technology allows "on-the-spot" characterization of soil and waste samples since it performs the analysis as it collects it. This system also reduces risks to workers since characterization can be performed

remotely and rapidly to identify any potential hazards.

- Began incineration of low-level mixed waste one month ahead of schedule at the Waste Experimental Reduction Facility.

At the Oak Ridge Site in Tennessee, we:

- Eliminated 90 percent of the low-level radioactive waste generated per year from the Radioactive Material Management Area. Shrinking the radioactive work area resulted in less contaminated protective clothing and saves over $1 million per year in waste disposal and operations costs. The project cost $300,000 and took five months to implement.

- Treated and discharged 100 million gallons of contaminated water.

- Treated 3.1 million pounds of mixed waste at the Toxic Substances Control Act (TSCA) incinerator at Oak Ridge. Cumulatively, we have treated almost 15 million pounds of waste at the TSCA incinerator.

GOAL 5: Focus Technology Development

We have focused technology development on five major areas: Mixed Waste Characterization and Treatment; Radioactive Tank Waste Remediation; Contaminant Plume Containment and Remediation; Landfill Stabilization; and Decontamination and Decommissioning. Crosscutting activities that apply to all or some of the focus areas are also conducted: Characterization,

Monitoring and Sensors; Efficient Separations and Processing; Robotics; and Technology Integration efforts to enhance the focus areas' ability to achieve accepted, commercially available products. In Fiscal Year 1996, in response to Congressional direction, the Department initiated a science program to bridge fundamental and applied technology development research. This program will continue in Fiscal Year 1997. The Environmental Management's risk management activities are also conducted from the Office of Science and Technology.

We must continue to invest in technology development. For example, DOE landfills contain 3 million cubic meters of radioactive and hazardous buried waste. The landfill caps, once believed to be adequate, have breached and better engineered technologies are required. New containment technologies consisting of covers and subsurface barriers to limit water infiltration and spread of contaminants are being developed that will prevent migration of all contaminants for time periods consistent with those of long-lived radionuclides.

Of course, work does not end with developing the technologies. Regulatory and stakeholder acceptance of these technologies is paramount to implementation. Also, the states require rigorous validation processes. Through the Western Governors' Association DOIT (Develop On-site Innovative Technologies) committee, an 18-state Interstate Technology and Regulatory Committee was established with the aim of expediting this process. We realized a major accomplishment in April 1995 when four States (California, New

Jersey, Illinois, and Massachusetts) signed a Memorandum of Understanding through which these states agree to share information on technologies and to accept participating states' validation work. This saves time and eliminates duplicative work.

During Fiscal Year 1995, 50 new or improved technologies were demonstrated and 24 were made available for transfer for implementation. 13 new technologies were implemented at waste cleanup sites. For instance, Resonant Sonic Drilling, an innovative drilling technology that increases drill penetration in difficult geologic media and reduces drilling wastes, was used in Hanford, where it achieved greater than 25 percent cost savings over baseline methods. Also, the Rapid Transuranic Monitoring Laboratory, which provides on-site monitoring of contaminated air and soil, was selected for implementation at the Savannah River Site. This system is capable of processing samples in less than one hour at a cost of approximately $30 per sample compared to $200 to $300 per sample using traditional methods.

GOAL 6: Strengthen Stakeholder Partnerships

Dealing openly and effectively with States, Tribes and the public is not only the right thing to do, it is a requirement of doing business successfully in modern America, and it can reduce cost and improve policy. Hence, we have made this a major element of our operations. Here are few examples of our successes in this area.

- The recent, unprecedented agreement negotiated between the Department of Energy, the State of Idaho, and the Department of the Navy regarding spent fuel and radioactive waste issues at the Idaho National Engineering Laboratory (INEL) has succeeded in positively redefining federal and state relations. The solution covering the receipt, storage and eventual removal of spent fuel from Idaho comprehensively addresses national security, future environmental protection, and public funding concerns. The agreement accelerates the cleanup of INEL and simultaneously continues its vital support of the Navy's nuclear propulsion program. We appreciate the Sense of the Congress resolution supporting this agreement that was included this year in the National Defense Authorization Act.

- Working closely with labor unions at the Mound Plant in Ohio, we recently took a bold step to achieve a mutually supportive approach to cost-cutting. This pathbreaking labor agreement provides a new model for site cleanup and closing issues which will simultaneously increase productivity and workforce stability.

- Stakeholders have been a significant part of the 1996 Baseline Environmental Management Report development process through meetings, workshops, comment periods, newsletters, and national forums.

- We have established a total of 11 Site-Specific Advisory Boards (SSAB) at Fernald, the Grand Junction Projects Office (Monticello, UT board),

Idaho National Engineering Laboratory, Hanford, Los Alamos National Laboratory, Nevada Test Site, Oak Ridge, Pantex, Rocky Flats, Sandia National Laboratory, and Savannah River Site. Another SSAB is presently being formed at Paducah and should be in place in the near future.

Citizen participation is an essential part of our decision-making process. Besides enhancing credibility and accountability, it has proven to be economical and effective. For example, after the Fernald Citizens Task Force examined and analyzed conditions at this large industrial site -- comparable in scale to Ford Motor Company's River Rouge plant -- they concluded that different parts of the site would be suitable for different future uses. As a result of the collaborative process with the site contractor and the Department, recommendations were made which will save time in completing the cleanup with an estimated one billion dollars in cost savings over the life of the project.

These are only some of the achievements we have realized over the past year. While we can look back at the improvements and solutions, moving forward on our long term goals is of the utmost importance. Accordingly, I will turn now to our plans for the future.

Analysis of the Environmental Management Budget by Program Area

To carry out these diverse tasks and meet our goals, the Environmental Management program is organized into different program offices. Four primary programmatic entities -- the Offices of Waste Management, Environmental

Restoration, Nuclear Material and Facility Stabilization, and Science and Technology Development -- carry out the core missions of the Environmental Management program, with assistance from other Departmental support offices. Our Fiscal Year 1997 program commitments, included as an appendix, demonstrate a consistent, results-oriented approach to addressing the legacy of fifty years of nuclear weapons production.

The Department is requesting $5,409,310,000 in new budget authority for Fiscal Year 1997, $57.1 million less than the Fiscal Year 1996 Defense Appropriation. This represents a 1 percent reduction in spending authority compared to Fiscal Year 1996. Without the offsets that reduce the budget request, the Department's Fiscal Year 1997 Budget for the Environmental Management Program totals $5,567,710,000. A number of items will offset the budget request outlined above, reducing the total Environmental Management budget request for Fiscal Year 1997. The Department plans to use $150,400,000 of prior year balances in Fiscal Year 1997. $8,000,000 will come from the Savannah River Site Pension Refund. The information on the Fiscal Year 1997 budget request follows in Table 1.

TABLE 1
ENVIRONMENTAL MANAGEMENT
Comparable Summary (Dollars in Millions)

	FY 1996	FY 1997	Percent Change
Waste Management			
Defense	1,917.0	1,536.7	- 19.8
Environmental Restoration			
Defense	1,804.1	1,762.2*	- 2.3
Nuclear Material and Facility Stabilization			
Defense	915.7	903.8	- 1.3
Technology Development			
Defense	297.9	303.8	+ 2.0
Site Operations			
Defense	**	329.5	N/A
Environmental Science Program			
Defense	63.9	52.1	- 18.4
Privatization (Hanford)			
Defense	0.0	185.0	N/A
Policy and Management			
Defense	**	48.2	N/A
Program Direction			
Defense	473.8	446.5	- 5.7
Use of Prior Year Balances and Other Adjustments			
Defense			
Prior Year Balances	- 377.7	- 150.4	- 60.2
SRS Pension Fund	- 37.0	- 8.0	- 78.4

The Fiscal Year 1997 request of $5,409.4 million represents a 1 percent reduction from the Fiscal Year 1996 appropriation.

* Includes $376.7 million for Government contributions to the Uranium Enrichment D&D Fund.

** These offices have been established in Fiscal Year 1996 from pre-existing budgets and are proposed as new appropriation accounts for Fiscal Year 1997.

Note: Does not include $182 million being proposed in the government wide general provisions in the *Appendix* volume of the President's Fiscal Year 1997 Budget to provide up-front funding for additional Environmental Management privatization efforts.

The Environmental Management program's budget is broken down into four primary activity areas. These are the first four shown in Table 1. In Fiscal Year 1997, the budget for the Office of Waste Management is $1,536,653,000, which is about 28 percent of the total budget request. In addition, there is a new line of $185,000,000 item for the Privatization Initiative for the Tank Waste Remediation System at Hanford, 3 percent of the total Environmental Management budget request.

The Fiscal Year 1997 budget for the Office of Environmental Restoration is $1,762,194,000. Environmental Restoration comprises 33 percent of the Fiscal Year 1997 budget request for the Office of Environmental Management.

The $355,907,000 budget for the Office of Science and Technology includes $52,136,000 for the Environmental Management Science Initiative. These items represent 7 percent and 1 percent of the total Fiscal Year 1997 budget respectively.

The Fiscal Year 1997 budget for the Office of Nuclear Material and Facility Stabilization is $903,821,000, 17 percent of the total budget. As of October 1, 1995, the Office of Nuclear Material and Facility Stabilization transferred the "landlord" responsibilities to a new office within the Environmental Management Program, the Office of Site Operations. The Office of Site Operations was specifically created to support the road maintenance, fire safety, security, utilities, and all the other essential but less prominent necessities of running our sites. The top priority of the Office of Site

Operations is to maintain a safe, reliable, and cost-effective infrastructure and site services.

The new Office of Site Operations has been allocated $329,469,000 in the Fiscal Year 1997 budget, 6 percent of the total. Finally, program direction accounts for $446,511,000, 8 percent of the Fiscal Year 1997 Environmental Management budget and Policy and Management accounts for $48,155,000, or the remaining 1 percent.

Let me briefly describe each office and its budget requests for Fiscal Year 1997.

Waste Management
Budget Request: $1,536,653,000
(28.4 percent of the total Environmental Management budget)

The Waste Management program -- comprising over a quarter of the total budget request -- manages the treatment, storage and disposal of wastes, and works to minimize the amount of new wastes generated. The Department is faced with approximately 700,000 cubic meters of waste, which includes high-level radioactive waste (such as the waste found in the Hanford tanks), transuranic waste, low-level radioactive waste, hazardous waste, and mixed waste (waste that is both radioactive and hazardous).

In addition to maintaining safe storage, the Department continues to operate treatment and disposal facilities while developing badly needed additional treatment and disposal capabilities. Examples of these projects include the Tank Waste Remediation System at Hanford; the Defense Waste Processing Facility at the Savannah River Site; and the development of Site Treatment Plans with 20 States where the Department stores or generates mixed waste.

TABLE 2
WASTE MANAGEMENT
Defense Funding Summary
(Dollars in Thousands)

Defense Activity	FY 1996	FY 1997	Percent Change
Program Management	$ 73,069	$ 30,953	-57.6%
Facility Operations and Maintenance	988,321	924,532	-6.5%
New Facilities	357,674	184,945	-48.3%
Defense Waste Processing Facility	184,755	141,945	-23.2%
Hanford Waste Vitrification Plant	526	0	-100.0%
Waste Isolation Pilot Plant	177,700	165,951	-6.6%
Construction	134,901	88,327	-35.6%
Total, Waste Management and Corrective Activities	1,916,946	1,536,653	-19.8%

Environmental Restoration
Budget Request: $1,762,194,000
(32.6 percent of the total Environmental Management budget)

The Office of Environmental Restoration, the largest percentage of the Fiscal Year 1997 budget request, is responsible for the assessment and remediation of facilities and land no longer used for nuclear weapons production, as well as other inactive sites. These sites range from contaminated buildings to abandoned or inactive waste disposal sites. It is this portion of the overall Environmental Management program that is often described as the "cleanup" program.

We are continuing to move away from doing studies to engaging in actual cleanup. The environmental restoration work passed a significant milestone in 1995 -- the funding for on-the-ground cleanup work exceeded the amount spent on paper studies and assessment for the first time. Certainly, some investments in studies are necessary to ensure that cleanup funds are spent effectively. However, it was clear in 1993, that the time to "move dirt" and not produce paper had come. Since then, the funding shift has been dramatic. In Idaho, we spent roughly equal amounts ($40 million) in Fiscal Year 1994 on cleanup and assessments. In Fiscal Year 1995, the funding for assessment dropped to $17 million, while the amount spent on cleanup skyrocketed to $85 million. In Fiscal Year 1996, the funding in Idaho for assessments increased slightly to $23 million, while the amount spent on cleanup decreased to $69 million. Now, for Fiscal Year 1997 we are proposing to spend even more on cleanup (nearly $89 million), while our funding for studies will decrease to

approximately $18 million.

For the long term, we must fundamentally rethink the wisdom of attempting to remove all contaminated soil. Certainly, we must remove contamination where it is necessary to protect public health and the environment. Depending on what strategy is chosen, widely varying amounts of contaminated material could require exhumation and redisposal. If only a minimum of soil and contamination is removed, we could still generate more than a million cubic meters of material in the next several decades. If we go to the other extreme, and remove virtually all contaminated soil and material for redisposal, as much as 100 million cubic meters of materials could require redisposal. Removing this amount of contaminated material could entail some risks to the workers and to those who would be exposed along any transportation corridors. We should think very carefully before we embark on any strategy without working through its potential consequences for risks and ecological impacts as well as costs.

TABLE 3
ENVIRONMENTAL RESTORATION
Funding Summary (Dollars in Thousands)

Defense Activity	FY 1996	FY 1997	Percent Change
Remedial Action	$ 770,614	$ 743,998	-3.5%
Decontamination & Decommissioning	128,980	122,586	-5.0%
Long-Term Surveillance & Maintenance	1,709	2,554	+49.4%
Landlord	65,805	63,387	-3.7%
Compliance Oversight	12,074	12,139	+0.5%
Contribution to Uranium D&D Fund	350,000	376,648	+7.6%
Rocky Flats Waste Operations	74,289	100,321	+35.0%
Rocky Flats Site Stabilization	400,581	340,561	-15.0%
Total, Environmental Restoration	1,804,052	1,762,194	-2.3%

Nuclear Material and Facility Stabilization
Budget Request: $903,821,000
(16.7 percent of the total Environmental Management budget)

The mission of the Office of Nuclear Material and Facility Stabilization is to reduce the high-risk conditions associated with unstable excess nuclear and chemical materials left at former nuclear weapons production facilities and reduce the maintenance costs associated with stabilizing buildings awaiting decontamination or final disposition. This involves the protection of workers and the environment from exposure and contamination, the stabilization of hazardous nuclear and chemical materials, deactivation of facilities to attain the lowest surveillance and maintenance costs, and transfer of facilities to the Office of Environmental Restoration for decontamination and decommissioning. This program area is responsible for some potentially severe risks: unstable plutonium and spent nuclear fuel.

Last year, the Environmental Management program's responsibilities in the Nuclear Material and Facility Stabilization program area essentially doubled as the result of transferring the responsibility for the Savannah River Site in South Carolina, the Mound Site in Ohio, and the Pinellas Plant in Florida from the Office of Defense Programs to the Environmental Management program, as well as approximately fifty high-risk facilities at other sites in several states. One of the reasons the Office of Nuclear Material and Facility Stabilization's budget request has remained stable is because of fewer expected facility transfers in Fiscal Year 1997.

This year, the Department transferred responsibility for spent nuclear fuel

management from the Office of Waste Management to the Office of Nuclear Material and Facility Stabilization. This transfer reflects the fact that much of the spent fuel will require some type of stabilization before final disposal. Spent nuclear fuel management is a critical component of the office's duties. There are approximately 2,700 metric tons of highly radioactive spent nuclear fuel currently in storage among the Department's sites. Much of this is in deteriorating condition since it has been in storage far longer than planned. In some cases, the risks to workers and potentially the public are urgent, because corroding fuel elements can release radioactivity into the storage pool water and possibly to the environment. The Office of Nuclear Material and Facility Stabilization now has the responsibility for safely managing the Department's spent nuclear fuel.

A vital role of this office is to maintain, and when appropriate utilize, the capability for reprocessing spent fuel. This technology was used to extract fissile material for defense purposes during the Cold War. This same technology is now being used to stabilize corroded spent fuel, producing a relatively stable form of plutonium or highly enriched uranium, and a variety of wastes, including high level liquids, which are being vitrified in the Defense Waste Processing Facility; transuranic wastes, which are intended to be disposed of in WIPP; and low level waste, which will be disposed of on-site at the Savannah River Site. Although the volume of these wastes is much larger than the volume of the original spent fuel, each waste form can be stabilized with existing technology, and has an established "path forward" for addressing final disposition issues.

The Department is now examining the future role of the reprocessing canyons at the Savannah River Site, which are the only operating reprocessing facilities in the United States. A preliminary study on the utilization of these two canyon facilities indicates that all the necessary reprocessing operations could be conducted in the F-canyon, and that the nuclear material in the H-canyon that requires reprocessing could be transferred to the F-Canyon, resulting in a potential savings of approximately $200 million over the next several years. This consolidation could also allow the limited pool of experienced managers to be transferred to the F-canyon, resulting in more efficient operations. Of important note, however, the Defense Nuclear Facilities Safety Board and Congress have expressed concerns about the need for maintaining redundancy in the case of a catastrophic accident. We intend to maintain both facilities in a high degree of readiness. The Department will continue to emphasize safety of operations and future mission as paramount issues in making this decision. In that regard, the Department is further evaluating the structural integrity and seismic response for the canyon facilities. These analyses are expected to be completed in July 1996. In addition, we are making a substantial investment in developing new technologies to stabilize spent fuel and irradiated targets with a lower cost than traditional reprocessing.

TABLE 4
NUCLEAR MATERIAL and FACILITY STABILIZATION
Funding Summary
(Dollars in Thousands)

Defense Activity	FY 1996	FY 1997	Percent Change
Program Integration	$ 27,561	$ 2,336	-91.5%
Surveillance and Maintenance	552,707	463,120	-16.2%
Stabilization/Deactivation Actions	123,138	163,203	+32.5%
Program Support	8,443	2,394	-71.6%
Change in Inventories	0	-100	N/A
Spent Nuclear Fuel	148,001	187,711	+26.8%
Construction	55,894	85,157	+49.4%
Total, Nuclear Material and Facility Stabilization	915,744	903,821	-1.3%

Science and Technology
Budget Request: $355,907,000
(6.6 percent of the total Environmental Management budget)

Some of the environmental, health, and safety risks present at our sites cannot be reduced, either because the technology does not exist to address these risks, or because today's solutions would cost too much. By recognizing the potential for new technologies to provide better and cheaper solutions, we can identify projects that can be stabilized for the near-term, while we allow science and engineering research to find better long-term answers. The Office of Science and Technology reflects our strategy of investing in technology development to develop long-term effective methods for addressing environmental challenges. The goals of our technology development program include reducing risks to people and the environment, reducing cleanup costs, and finding new technologies for environmental problems for which no solutions currently exist. The Office of Science and Technology program is an aggressive national program of basic and applied research, development, demonstration, testing, and evaluation for environmental cleanup, waste management, and related missions. Our strategy is to identify and develop technologies that can clean-up the nuclear weapons complex, and manage the wastes more quickly, more safely and at a lower cost. In many cases, developing new technologies presents the best hope for ensuring a real reduction in risk to the environment and improved worker and public safety, especially given our national fiscal constraints. We have already incurred significant savings through the use of these improved technologies.

Responding to a Congressional mandate from the Fiscal Year 1996 Energy and Water Appropriations Act, the Department has initiated a $50 million partnership between the Office of Science and Technology in the Environmental Management program and Department's Office of Energy Research to advance the weapons cleanup program. The Administration will propose about $38 million in the Fiscal Year 1997 budget to advance the effort of the Environmental Management's Science program. The new program will carry out a long-term research agenda focusing on the fundamental science needed to develop less costly, innovative cleanup methods and reduce risks to cleanup workers and communities near weapon cleanup sites.

TABLE 5
SCIENCE AND TECHNOLOGY
Funding Summary
(Dollars in Thousands)

Defense Activity	FY 1996	FY 1997	Percent Change
Treatment and Remediation Technology Systems	$ 154,106	$ 166,873	+8.3%
Crosscutting Programs	42,208	44,183	+4.7%
Industry and University Programs	61,337	62,154	+1.3%
Technology Integration	20,595	21,747	+5.6%
Program Management	19,635	8,814	-5.5%
Total, Technology Development	297,881	303,771	+2.0%

ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM
Funding Summary
(Dollars in Thousands)

Defense Activity	FY 1996	FY 1997	Percent Change
Basic Science Program	$ 50,000	$ 38,137	-23.7%
Risk Policy Program	13,875	13,999	+0.1%
Total, EM Science Program	63,875	52,136	-18.4%

Conclusion

We are making real progress in the Environmental Management program in addressing some very real health and safety risks and in improving the way we do business. These results are clearly shown by the fact that for two straight years we have reduced our budget undertaking the same, or greater, workload. Nonetheless, given the long-term nature of the program, it is critical to have a vision for the future, beyond a one or two-year budget cycle.

One of the basic problems with the Environmental Management program when it was created was that it was a stepchild of an organization that had very different priorities and missions. Today, the work of the Department with respect to nuclear weapons is much reduced and refocused. The Environmental Management program's mission has grown dramatically as we have learned the extent of the challenges we face, and as public awareness and concern about safety and health has heightened.

The environmental, safety and health problems in the nuclear weapons complex are often larger and typically more intractable than those of most conventional commercial cleanup programs. In many cases, no effective technologies exist to clean up hazardous and nuclear waste sites. Even where technology exists, we often lack clear standards on "how clean is clean?" And the fiscal reality is that there will be less money for activities we have performed in the past. It is critical to recognize that although we can

economize and increase efficiency, there is a point beyond which further reductions in our budget mean less work, and increase the risks to public health, workers, and the environment.

Despite these challenges, we are moving forward. The program inherited business practices, managerial structures, and contractual systems not designed for effective completion of the type of work to be done. We have changed this and are creating a strategy to meet our goals. My vision for the program is one that will blend business practices that are proper for the type of work that we do with the accountability and responsibility that are required of us as public servants. Our long-term strategy involves focusing on stabilizing the problems at our sites using risk based priorities, while simultaneously making the necessary investments in developing new technologies to grapple with certain intractable problems in a more cost-effective manner. We have substantially increased our investment in science and technology with the new Science Initiative and the new Spent Fuel Technology Development Program, which is centered at the Savannah River site and Idaho. Having made these investments, we are confident that the work we do in stabilizing the sites will buy us the time to implement these new more cost-effective remedial technologies in the future. I am confident that the same ingenuity that fought the Cold War will enable us to successfully seek solutions to the current challenges we face. I ask you for your full support for our budget request to continue our progress in this vital program.

APPENDIX: Environmental Management Commitments for the Future

With new contracts, leaner site infrastructures and effective technologies in place, we are poised to make substantial progress in Fiscal Year 1997. And we in the Environmental Management program are willing to be measured against our commitments across the country. In meeting these goals, we will comply with NEPA and all other applicable statutory and regulatory requirements.

WASHINGTON (Hanford Site)

- Eliminate imminent safety risks and substantially reduce maintenance costs for a significant set of high level radioactive waste tanks. As a result, routine mandatory requirements for protective clothing and equipment will not be required for entry. Key parameters like temperature and pressure will be monitored remotely.

- Resolve high heat safety issue after retrieval of waste from high level radioactive waste tank number C-106.

- Complete scientific investigation into the potentially serious problem of accumulations of gases resulting from the chemical reaction of ferrocyanide in the tanks, which has occurred in an uncontrolled manner after the addition of chemicals to the tanks, prior to the imposition of modern technical and safety controls.

- Start interim stabilization of seven flammable gas watch list tanks. This will remove the pumpable liquids from the organic watch list tanks to reduce leakage of highly radioactive waste in case these tanks begin to leak.

- Complete construction of and begin operation of Project W-030, the Tank Farm Ventilation Upgrades. This project will ventilate tanks that have a higher potential for accumulation of flammable gases.

- Complete removal of floating organic layer in Tank C-103. This project will remove the flammability potential and the potential for noxious vapors from the organic layer.

- Complete construction of "cross-site" transfer line. This will allow transfers of waste between high level waste storage areas and allow for the removal of waste from tanks that are found to be leaking or have other safety problems in the single shelled tanks, to the safer and much newer double shelled tanks.

- Startup of the Waste Receiving and Packaging Facility (WRAP-1) which will package low level waste for ultimate disposal.

- Complete construction of the Phase V portion of the Central Waste Complex which will be a 168,000 square foot storage facility for transuranic waste and mixed low level waste.

- Excavate and remove over 50,000 loose cubic yards of contaminated soil in at the 100-BC and 100-HR reactor areas at Hanford, Washington.

- Complete deactivation of the final 14 N-Reactor facilities, including

spent fuel basin cleanup, for eventual decommissioning and decontamination of the reactor at Hanford, Washington.

- Complete all of the deactivation activities at PUREX.

- Continue stabilization of Plutonium Finishing Plant materials according to the Defense Nuclear Safety Board Recommendation 94-1 implementation plan. Initiate stabilization of Plutonium solutions using the vertical calciner, a thermal destruction process. Continue stabilization of reactive solids using muffle furnaces.

- Replace 71,000 square feet of unsafe roofing on 15 buildings at our Hanford Site.

- Complete a large-scale demonstration for safe storage or "cocooning" of the Hanford C-production reactor.

- Deploy an in situ (in place) organic contaminant detection sensor and moisture content sensor on the tip of the Cone Penetrometer, which will be pushed into Hanford tank wastes.

- Use of a subsurface imaging system (Electrical Resistance Tomography) to detect leakage from tank wastes.

SOUTH CAROLINA (Savannah River Site)

- Produce 80 to 150 canisters of high-level waste from Defense Waste Processing Facility.

- Retire one high-level waste tank from service.

- Install a final cap at the 20-acre low-level radioactive waste disposal facility to eliminate pollutant migration, and an interim cover over a 76-acre radioactive waste burial ground to significantly reduce contaminant mobility, at the Savannah River site in South Carolina.

- Complete construction, installation, and start-up of the F&H Canyon ground water remediation systems, which will remove hazardous contaminants and control tritium migration, and operate three air strippers and five soil vapor extraction units, which will remove 10,000 pounds of volatile organic compounds per month from soils and ground water, at the Savannah River site.

- Deploy advanced retrieval technologies, such as the use of water jets, for the removal of the saltcake portion of liquid high-level waste from Tank 41. New approaches and technologies for tank waste treatment will cut costs since the amount of support infrastructure and associated equipment is reduced. Currently, approximately $18 million is spent on the infrastructure equipment used for conventional tank waste preparation prior to transfer.

- Complete the optimization of magnetic separation technology (MAG*SEP) for treatment of waste waters from site cleanup at the Savannah River Site; develop new in situ applications for this technology.

- Develop electrochemical, crystallization, and salt splitting processes to reduce low level waste volume disposal.

- Complete stabilization of 3,500 gallons of plutonium-242 solution stored in H-Canyon. This material poses a risk to workers, and was identified as a high-priority by Defense Nuclear Facility Safety Board Recommendation 94-1.

- Begin stabilization of the Mark-16 and Mark-22 spent nuclear fuel, containing 7.3 metric tons of heavy metal.

- Complete stabilization (conversion to metal) of the Mark-31 plutonium targets, containing 139 metric tons of heavy metal.

COLORADO (Rocky Flats)

- Complete stabilization of 18,000 liters of Plutonium solution in Buildings 371 and 771 and off-site conversion of highly enriched Uranium solutions to a solid form for storage.

- Repackage an additional 100 of the 700 (for a total of 205) inorganic drums to be repackaged by 2002. Close out remaining 11 of 21 mixed residue closure units.

- Complete design review and construction for pyrochemical salt stabilization project to begin the processing of approximately 16,000 kilograms of Plutonium-bearing salt resides for completion in December, 1997. Complete design review and construction for the ash stabilization project to begin the stabilization of approximately 4,000 kilograms of sand, slags and crucible.

OHIO (Fernald, Mound)

- Complete the essential design activities and D&D of two highly-contaminated buildings, thereby maintaining the accelerated cleanup schedule while reducing risks to workers at the Fernald site in Ohio.

- Complete the construction and start up of a waste water treatment plant and the construction of the on-site disposal facility at Fernald to reduce further long-term risks to human health and the environment.

- Complete disposition of approximately 32,400 cubic feet of low-level waste and the remaining nuclear materials waste inventory, significantly reducing landlord costs and enabling building demolition to proceed on schedule, at the Fernald site.

- Use innovative technologies and new processes that maximize efficiency and recycle potential, we will complete a large-scale decontamination demonstration at the Fernald Plant 1 uranium processing facility.

IDAHO (Idaho National Engineering Laboratory, Argonne National Laboratory - West)

- Operate the Sodium Processing Facility (SPF) to treat 70,000 gallons bulk sodium at Argonne National Laboratory-West.

- Restart the New Waste Calcining Facility, which uses thermal treatment to convert waste from liquid to a granular form, and process 140,000 gallons of liquid high-level waste into more stable form for safe storage.

- Continue incineration of low-level waste (LLW) and mixed LLW in the Waste Experimental Reduction Facility (WERF) to treat 6,500 cubic feet of inventory.

- Begin the private sector treatment of transuranic and mixed radioactive and hazardous chemical waste. The Request for Proposal has already been issued and project work is expected to begin in June 1996.

- Complete retrieval and treatment facilities construction and limited production test of operational systems, and initiate the retrieval and treatment of pit contents, at the Idaho National Engineering Laboratory (INEL), Pit 9.

- Install landfill caps at the Central Facilities Area burial grounds and the former SL-1 reactor/BORAX I reactor burial grounds, and complete the Decontamination and Decommissioning of the Advanced Reactor Area II, at INEL.

- Complete deactivation of Advanced Reactor Measurement Facility, e.g., capping of floor lines, turning off utilities, etc.

- Complete transfer of all 627 spent nuclear fuel elements from the North and Middle Basins of CPP-603 to safer storage areas, and continue fuel repackaging and transfer from the South Basin of CPP-603.

- Demonstrate the dismantlement of the CP-5 Reactor at Argonne National Laboratory - West using hardened robotic remote systems that withstand radioactive degradation. Using hardened remote systems protects workers, is more cost effective, and prolongs the life of the equipment since it is protected against the damaging effects of radiation and other environmental hazards.

- Complete a large-scale decontamination and dismantlement demonstration at the Chicago Pile-5 Test Reactor at Argonne-East.

- Develop processes to extract strontium, cesium, technetium, lanthanum and transuranics in a single process at Argonne National Laboratory.

- Deploy the Light Duty Utility Arm in Idaho liquid high level waste tanks to inspect tank surfaces and demonstrate its full-scale retrieval capability.

- Demonstrate a mobile van waste inspection systems that will perform nondestructive evaluation and assay (analysis) of containerized nuclear wastes at Idaho National Engineering Laboratory. (The combined nuclear techniques will assay wastes to meet performance requirements of the Waste Isolation Pilot Plant acceptance criteria.)

- Complete radioactive bench-scale testing of the Plasma Hearth System, and transfer the technology to mixed waste treatment privatization initiatives.

- Complete demonstration of viscous liquids containment and prepare performance standards based on the results. Test innovative verification and monitoring tools.

- Complete implementation of the Telerobotic Retrieval System at Pit 9.

- Complete in situ (in place) stabilization of buried waste using grouting techniques and prepare performance standards.

CALIFORNIA (Lawrence Livermore National Laboratory)

- Continue construction of consolidated waste treatment and storage facility at Lawrence Livermore National Laboratory.

NEW MEXICO (Sandia National Laboratory, Los Alamos National Laboratory, Waste Isolation Pilot Plant)

- Continue remediation of transuranic waste at Los Alamos National Laboratory while we work toward a new completion date for a renegotiated Consent Order with New Mexico. Remediation includes retrieving waste from earthen covered storage units that do not meet certain Resource Conservation and Recovery Act (RCRA) requirements and placing the repackaged waste on storage pads under metal framed domes that meet RCRA requirements.

- Submit to the Environmental Protection Agency (EPA) an application to certify the Waste Isolation Pilot Plants (WIPP) compliance with EPA's disposal regulations for transuranic waste.

- Obtain a final decision from the EPA on the DOE No-Migration petition for WIPP.

- Complete ten expedited cleanups at Los Alamos National Laboratory in New Mexico.

- Test innovative designs and alternative materials for barrier protection to determine cost and performance parameters and to verify integrity techniques.

- Test various ion exchange materials, at Sandia National Laboratory, on both simulated and actual radioactive material, to determine best method to remove cesium, strontium, and technicium from high level waste streams.

TENNESSEE (Oak Ridge Reservation)

- Continue safe operation and maintenance of treatment, storage, and disposal facilities for sanitary, hazardous, radioactive, and mixed

waste.

- Treat 1.6 million pounds of liquid waste at a minimum, and 500,000 pounds of solid waste at the Toxic Substances Control Act (TSCA) incinerator.

- Complete the decommissioning of six cooling towers at the K-25 site in Tennessee, thereby removing uranium contaminated sediments and eliminating fire and industrial hazards associated with the facilities.

- Remove the spent nuclear fuel currently stored in the Bulk Shielding and Tower Shielding Reactors at Oak Ridge to the Savannah River Site.

MISSOURI (Kansas City Plant)

- Replace faulty, leaking overhead industrial waste piping system in the Industrial Wastewater pre-treatment plant at the Kansas City Plant.

NEVADA (Nevada Test Site)

- Continue disposal operations for packaged low-level wastes from other DOE sites.

FLORIDA (Pinellas Plant)

- Close and complete the transfer of the Pinellas Plant to the Pinellas County Industrial Council. Continue residual pump and treat, and administrative requirements.

TEXAS (Pantex Plant)

- Continue environmental operations in support of weapons dismantlement and stockpile stewardship.

Mr. BATEMAN. Thank you very much, Mr. Grumbly, and thank you again, Secretary Goodman.

The chair has a number of questions, but the chair also has more questions that he wishes to submit in writing for the record, so I am going to withhold asking any questions today in light of the fact that we have the additional panels.

I would now turn to the chairman of the full committee, Mr. Spence, in case he has any questions.

The CHAIRMAN. I have no questions.

Mr. BATEMAN. Mr. Dellums?

Mr. DELLUMS. Secretary Goodman, I have a couple of prepared questions that I think are important to address in this forum.

New technologies, I think we all agree, offer the hope of reducing costs, increasing cleanup, efficiency, reducing the time required for completed individual cleanup projects and containment activities. Can you tell us what you are doing with respect to efforts in the Department of Defense to move as rapidly as possible toward new technologies, and so on? And then I have a follow-on question to that.

Ms. GOODMAN. Thank you, Mr. Dellums. We are investing modest amounts in our Environmental Security Technology Certification Program to enable us to demonstrate and validate technologies at military bases involving regulators, which are key to being able to use innovative technologies. We are doing a number of these projects in California and in other States around the country that I believe are bringing us good benefits. For example, recently, the Army signed the first record of decision to use natural attenuation. Now, it is not a high-tech technology, but it is innovative, and it is cheaper than your typical pump-and-treat system.

So we are trying to take good ideas wherever we can find them, using our own money, or taking things off the shelf. We also partner with the Department of Energy in many instances. We have a modest budget request in this area, but it does really very much need your support to continue to make these investments because that is the best way to leverage our resources to get better results in the long run.

Mr. DELLUMS. And given that answer, are the accounts that are designed to facilitate emerging new technologies adequate funded? Your very first words were "we are modestly funding," so my question is are there adequate funds in the appropriate accounts if we can agree that emerging technologies are significant in terms of cost, efficiency, effectiveness, et cetera?

Ms. GOODMAN. If you fully fund our budget request for this year, that will certainly help us a great deal. Could we do more with more in this area? We probably could. It is an area where we are doing as much with our limited resources as we can.

Remember that in this area, most of this is R&D-type of dollars. It is a little different dollars than some of our other environmental funding, so it competes against some other resources. But I very much urge your support for the Environmental Security Technology Certification Program, for the Strategic Environmental Research and Development Program [SERDP], and for the environmental funding in each of the Army, Navy, and Air Force budget accounts.

Mr. DELLUMS. My second question is how effectively are we moving the available new technologies to specific requirements, and to what degree are we requesting their application when we publish requests for this?

Ms. GOODMAN. We are trying to transfer the technology as rapidly as we can. That is precisely why we created the Environmental Security Technology Certification Program, for which we are requesting $15 million in fiscal year 1997. That is where we demonstrate and validate the technologies, collect the cost and performance data, do it with the regulators, and then try to transition it as rapidly as possible.

Remember, in environmental technology, you do not have an approval process like you do, say, in the biotechnology area, where you have Federal Drug Administration [FDA] approval, you get national approval, and you can sell your product anywhere.

In environmental technology, it is very localized. You have to get the local regulator to say, OK, you can use it. So individual States such as California, for example, now have Environmental Technology Certification Programs. We would like to be able to participate in those programs so that if we demonstrate a technology at one installation, it can be used throughout the States. Then we would like the States to basically accept their certifications across State lines so that we can create a national network.

Mr. DELLUMS. You used the term "share"; let me ask, are you effectively cross-sharing your research efforts and the service activities out there?

Ms. GOODMAN. I believe we are. We will have a legislative proposal to you that I believe will enable us to better enter into cooperative agreements with States that will help us to better avail ourselves of the State approval process.

I think we are doing a good job in Defense in sharing among our military departments and in partnering with industry and with our other Federal agencies. It is in the regulatory approval process that we would like some greater ability to enter into a cooperative agreement with States.

Mr. DELLUMS. One final question, Mr. Chairman, going back to the first panel. Mr. Rezendes, in your opening remarks you talked about land use, and you indicated that there was a cost savings somewhere in the neighborhood of about $600 million if there were more realistic assumptions about land use. Could you elaborate on that a little bit, and in the context of your elaboration, where do you see community involvement and community participation in the issue of land use, because we live in the context of a democracy, and you know that people fight wars over land and how it is used. And one of the significant problems in the BRAC process is bringing the divergent interests of the community together to determine land use.

So I would like you to, in the context of answering my questions, also address that reality, which is an integral part of the process.

Mr. REZENDES. That last part you mentioned, community involvement, we think is critical to the success of any alternative other than permanent cleanup. Obviously, the community has to be a full partner, and they are a stakeholder in that, and I think communities are reasonable. We are seeing that, for example, the De-

partment of Energy is working with some communities already to try to do some of these things. However, the legislative requirement, which is one of a bias on Superfund, which is for permanent solutions, and also for unrestricted land use. There are some limitations or some leeway that EPA is providing in terms of guidance, but the legislation itself is really rather restrictive.

In some areas—for example, in Hanford, WA, where we have a high degree of contamination particularly of nuclear—it is probably unrealistic to assume that that land or pieces of that property would ever be used for unrestricted use. And working with the communities and coming up with more realistic estimates as to how that land could be used, would totally change the cleanup priorities.

I want to talk a little bit about that estimate. I want to give credit to Mr. Grumbly because that is really his estimate of $200 to $600 million a year. The Department is advocating this. They are advocating—I do not want to speak for Tom, since he is here—but he is advocating community involvement and a hard look at those unrestricted land use requirements.

Mr. DELLUMS. The final final question—I took all your questions; I am sorry about that—is directed to Mr. Lee. In your opening remarks when you were addressing the reform legislation, you mentioned that the issue of parcelling is in part addressed in the legislation. I would like for you to amplify a bit because as you know, one of the strategies that is an integral part of the BRAC cleanup process is parcelization, which is very important to the community.

Originally, they would go in and look at the worst to try to clean up. Now, a strategy to get land back to the community as rapidly as possible for conversion activities is to move into those areas and start where the contamination is the lightest in order to convert parcels of land as quickly as possible for higher and better use by the community to facilitate their conversion effort.

So I ask the question because I am interested in knowing how this legislation addresses that issue. You mentioned that it addresses it in part. Is your notion that addressing it in part is strong, from your perspective; should it address it more fully?

Mr. LEE. As far as the question of whether it should address it more fully, I might leave that up to DOD; maybe they could respond if that meets their needs. When I cited DOD and DOE's interest there, the legislation, H.R. 2500, addresses these in spirit, but maybe not to the full extent that DOE and DOE would like.

As for parcelling, the legislation addresses this in a sense, and I am not sure if it matches the current DOD wishes on this. They may want to comment on this more fully.

I am not sure if that fully answers your question.

Mr. DELLUMS. No. You opened the door.

Madam Secretary.

Ms. GOODMAN. Mr. Dellums, thank you. The four proposals that we are making to Superfund this year would address the parcelization process, specifically as it concerns base closure. Let me briefly summarize them because they are not contained in the current version of H.R. 2500, and I believe they are important to be considered either in that legislation or potentially by this committee itself as part of the defense authorization bill.

First, in the law that was passed several years ago to create this definition of an uncontaminated parcel, to allow those parcels at closing bases to be made available more quickly, that definition today is overinclusive. It does not recognize that a residential piece of property with a home heating oil tank on it, for example, which has never had a release of any type is an uncontaminated parcel. It defines that as contaminated. We do not think that makes any sense. There is no release into the ground. So we think that definition should be modified.

Second, what is defined as uncontaminated, even by current definitions, is right now not eligible for exclusion from what is a National Priority List site. That is the height of absurdity, in my view, that you have an uncontaminated parcel that could be included as part of an NPL listing of the most contaminated sites.

So we are working with EPA to clarify that, but we might welcome your support on that this year.

Third, we would like to have EPA have the discretion to defer listing entirely military bases on the NPL because today, most of our installations, if they are not on the NPL, are either working under some Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [CERCLA] or Resource Conservation and Recovery Act [RCRA] type of cleanup, either with the State or with EPA, and we have already made a lot of progress. So just adding it to another list merely adds more paper and does not get you more cleanup.

And finally, we would like the ability at our closing bases to have certain parcels be able to be transferred or sold before the remedy is fully in place. If that would be a benefit to the future users of that property and provided they agree with the appropriate protections, we are prepared to continue to do all the cleanup that is necessary. We continue to be responsible. But today, we do not treat Federal property like we do treat private property. Private property, you can buy and sell when it is contaminated as long as there are appropriate protections in place, but you cannot sell Federal property until the cleanup remedy is fully in place. That is usually several years away because first, you have to investigate it and know what the problem is; then you put the remedy in place.

So those four reforms we will be putting forward to you as legislative proposals, and we would encourage your support for them.

Mr. DELLUMS. Thank you, and I thank you, Mr. Chairman, for your generosity.

Mr. BATEMAN. Thank you, Mr. Dellums.

Let me just add parenthetically that we would look forward to having the legislation in the draft form that you mentioned. The probability is that anything we do will probably end up with our bill being re-referred. So I would suggest that you communicate with the people on the other committees your concerns, because I sense that they are valid concerns, and I would like to see, as we go through the reforms of Superfund and other legislation, that they get addressed.

With that, Mr. Sisisky.

Mr. SISISKY. Thank you, Mr. Chairman, and thank you for the presentations.

I may be a little critical, but I know how hard particularly Secretary Goodman has been working on the environmental thing, and I understand by reputation, Mr. Grumbly your work, and I appreciate your testimony here, too.

Number one, I must correct you. I think I am right—what bank would loan money on a piece of bad land to a private person? You know, the banks got burned up when private companies went bankrupt, and the banks held the liability of that land. So please do not use that phrase. I think I am right about that difference between Federal and private land.

But also, did I hear right that we are talking about a $41 billion budget, and only 10 percent has been completed? That means 45 percent, and only 10 percent completed—there is something wrong in there. Did I hear that right?

Ms. WILLIAMS. Yes, sir, that was my statement.

Mr. SISISKY. Right. You know, we can get drowned in research and development. I went to visit Hanford, and I was just knocked out there to see the leaking tanks and things like that, and looking at the graph of the sickness out there. I just could not believe it. This was 10 years ago.

I went to Rocky Flats, and they had not produced a weapon, I think, in 10 years, and all they have are people out there. When you ask what are they doing, they say, well, we are studying to clean up the sites.

Now, I wish you would tell me how many employees you have at Rocky Flats.

Mr. GRUMBLY. Right now, we have 4,000 employees at Rocky, and that is 3,000 fewer than we had a year ago.

Mr. SISISKY. But there were 8,000 when I was out there, and I said you cannot put 8,000 to cleanup in those buildings. They just never laid anybody off, and they just kept running. But I am glad that you have got that down, and I know the problem that you had there. But you did not mention New Mexico. I went to a city underground. What are we doing in New Mexico?

Mr. GRUMBLY. Are you talking about Waste Isolation Pilot Plant [WIPP], Mr. Sisisky?

Mr. SISISKY. Yes.

Mr. GRUMBLY. Well, WIPP was constructed back in the mid-eighties before the Department of Energy acknowledged that it was regulated by the Environmental Protection Agency, and as a result of the history that I think everybody knows at this point, the Department of Energy has finally come under the same environmental laws that everybody else has to deal with. And what we discovered at that point of time was that the building was not constructed to meet the EPA standards that currently exist. so we have been struggling——

Mr. SISISKY. Building? It was a city underground.

Mr. GRUMBLY. You are right, it is a city.

Mr. SISISKY. With stoplights and everything.

Mr. GRUMBLY. It is a very important apparatus that has to be open in the next couple of years if we are going to free all these sites from all the waste on them. We have got to get on with it, and one of the pieces of legislation that is before the Congress at the moment and indeed has just moved out of the Commerce Com-

mittee, I believe, is a piece of legislation that would clear out a lot of the regulatory underbrush so that the EPA can make its final decision about opening WIPP, but do it in a way that does not continue to cost the taxpayers hundreds of millions of dollars.

Mr. SISISKY. I do not want to hurt anybody's feelings, but if I remember correctly, we built superhighways out there in the States to carry two truckloads a day. I said then that Jesse James had a gun, but some of these Governors have the pens, and I will say it again because it is not fair.

My main question is on privatization. You cannot get any more competitive than one dollar a year, and yet we change companies who are running these places as if we change suit coats. At exorbitant prices, we bring in another contractor.

I am not against privatization of certain things, but what company would take over the obligation of the land? They would have to be crazy. You do not know what is under there and what the underlying thing is.

To me, we are going to have to prove that we can save money with privatization. I am telling you right now that I can give you a history and a litany—and I am not antibusiness; I am probusiness—and I have had this out at the Pentagon—they want to privatize everything—everything. And I am just wondering how much you have studied this without being obligated to certain parties and things. And I would like to have your perspective on how you view privatization. I am not sure that the Government can do it with Government workers, but it may be the best thing, and I think we need to explore both of those avenues.

Mr. GRUMBLY. Let me take a crack at this first. First of all, the objective obviously is to substantially reduce the cost of doing business. We all share that objective, and there are a lot of different ways to get to that objective.

Privatizing—and in the case of privatizing, I mean essentially attracting private capital to come in so that private capital ends up building plans, and the Government ends up purchasing the services that come out of those plants. And in order to do that, there are a lot of problems that we have to overcome. We have to assure the private sector that the money is going to be there in case those of us who work in both the Congress and the executive branch wake up one morning and decide we are going to cancel somebody's contract, so we have got to provide the assurance for that.

Second, we have to ensure that the money is going to be there to actually purchase the service. Third—and at the DOE sites, this is not a problem—we have to provide appropriate indemnification to make sure that people do not pick up past liabilities, and Congressman Hastings has a bill in the hopper that would enhance that, and I think the piece that he is doing in that would be a good thing to do.

What I can tell you as the proof of the pudding is that we have—and I would be happy to submit for the record—several large projects around the DOE system at the moment that are not in the planning stages, but are in the building stages, where we have saved substantial sums of money off the original estimates by privatizing these activities.

I agree that we have to go carefully. We cannot privatize everything that is in the defense complex——

Mr. SISISKY. And watch the double overheads that you deal with sometimes.

Mr. GRUMBLY. Absolutely.

Mr. SISISKY. When you have the ability, and then you are paying another overhead.

Mr. GRUMBLY. Right; but I am not talking about subcontracting here. I am talking about prime contracts with the DOE so that we only have a single overhead that is involved.

I think we do need to go carefully, but I think if we do not try some innovative ways of building the facilities and doing the work we have to do, all you have to do is look at the budget baselines out to the outyears—and I saw the expression on your face when, in Chairman Hunter's opening statement, he talked about the potential costs for cleaning up this complex—your jaw dropped, and I could hear you in your mind saying, "We will never have the money to do that; who are they kidding?"

The only way we are going to be able to make substantial savings on this is to try some innovative ways. Now, we have to be careful, we have to go stepwise, we have to protect people to the extent we can, we have to ensure there is competition so we do not pay the risk premiums that Mr. Rezendes was talking about. But I think that if we do not step up to the plate and try some different ways of doing business, particularly in the DOE complex, we are simply not going to have the resources available to do the job. You all made that clear to us last year, and we are taking the Congress seriously in this matter.

Ms. GOODMAN. Mr. Sisisky, let me respond to the two points you made about the DOD program. At our closing bases, there is a great deal of interest in reusing the contaminated parts of that base. In fact, the areas in which there is generally the most interest are the areas that are most contaminated, such as the air fields. All airbases have contamination around the flight line. That is the most valuable part of the base for reuse because that is where you can build an airport or conduct a cargo operation. At a shipyard, the most valuable parts of the Charleston Naval Shipyard are the industrial areas which can be used for further industrial operations.

Today, the reuse of that property can only be made in the form of a lease until the final remedy is installed and has been improved by a regulator. The potential user, the new shipping company that wants to come in, cannot purchase that property and therefore may be limited in terms of the financing that he can obtain to conduct his operations without——

Mr. SISISKY. Excuse me for a minute. You are talking about airbases. Are you talking about leaking oil and fuel in the ground? Is that what you are talking about?

Ms. GOODMAN. Certainly. That is the type of contamination we have at most of our air fields.

Mr. SISISKY. It seems to me from a common point standpoint—and maybe I do not know anything—but the land has to be cleared——

Ms. GOODMAN. Of course it does.

Mr. SISISKY [continuing]. And it is easy to dig that thing up. It looks like the easiest type of thing that I could imagine to clean that up.

Ms. GOODMAN. Right; and that is what we are doing at our airfields. We are cleaning it up. That is what we are doing at Charleston shipyard. We are cleaning it up.

I am talking about another tool in the toolbox to enable rapid reuse of that property and revitalize the community that has been affected by the closing base.

You also asked about the progress in your cleanup program. Let me put up a chart here that shows that we are now investing over 70 percent of DOD's cleanup dollars in actual cleanup. In fact, I think Tom Grumbly stole this chart from me.

Mr. BATEMAN. Excuse me. If you could suspend, we have 2 minutes left to make this vote. So you may pick up with your chart when we come back, and after you have finished answering, we will go to Mr. Hastings.

[Recess.]

Mr. BATEMAN. The committee will come to order.

Secretary Goodman, Mr. Sisisky not having arrived, if you don't mind, we will let you withhold the rest of the response you were going to make, and we will turn to Mr. Hastings for any questions he may have.

Mr. HASTINGS. Thank you very much, Mr. Chairman.

I want to start by going back to the first panel. Mr. Rezendes was the author of this GAO report from December 1994, entitled "Difficulties in Coordinating Activities Under Two Environmental Laws." In that report, of course, you suggest very strongly that because of the interpretation or overinterpretation of those statutes, things do not seem to get done in a timely manner.

I am assuming by some of the remarks and testimony I have heard from some of the other witnesses that this is still an ongoing problem as it relate to CERCLA, because I think you are referring to that. If you had your choice and could wave a magic wand, what three or four specific things would you change to make this process much more efficient and fast-tracked?

Mr. REZENDES. First, I share Ms. Goodman's desire for land use planning, basically, to have a more specific, unrestricted—something other than unrestricted use for the facility. Also, the bias toward permanence in the Superfund—I think those are really good points to be looked at.

On that report. we focused a lot on the CERCLA/RCRA overlap and what appear sometimes to be goofy things where we do things—I think we have one example in there under RCRA where the facility was cleaned up, yet they were spending over $30,000 to do CERCLA paperwork even though it was not going to do any more cleanup, it was not going to provide any more information to anybody, but it was documenting a process so it could be closed under CERCLA as well.

Those kinds of things need to be cleaned up. One way of doing that, I think, is designating one person either at the State level, the State regular, or EPA as in charge to make those kinds of tradeoffs as to what is the most reasonable, logical thing to do.

The problem is when you have competing statutes with various nuances to them, and you have regulators who do not agree, then you have people asking for various things that are not always in the best interest of how we are spending our dollars on the actual cleanup.

Mr. HASTINGS. You said a single regulator——

Mr. REZENDES. Or someone taking the lead; someone being the lead regulator.

Mr. HASTINGS. Would a State regulator be fine?

Mr. REZENDES. Sure. That is fine, too.

Mr. HASTINGS. That would work. Somebody who has responsibility for that.

Mr. REZENDES. Yes. No question.

Mr. HASTINGS. Related to that, the Department of Energy has suggested, obviously, a single regulator; just by your answer, you suggest that that is one of the things that needs to be done. That is embodied in some of the reforms in Superfund right now.

For Mr. Grumbly, one of the things that we have talked about a number of times is transferring decisionmaking authority back to the sites, and in your testimony, you made the observation that there was a huge savings made because we shipped some slightly contaminated nitric acid to Great Britain, but yet, because of going through the regulations and maybe not all of that authority at the site, we did save some—I will acknowledge that—but we could have saved more had that decision been made in a much more timely manner.

The point is at Rocky Flats, it appears you are transferring more authority. I have heard that. I also understand that the Department has sent memos out to all of the site managers, asking them to take more authority. If that is correct, could you make copies of those memos available to us?

Mr. GRUMBLY. Yes, sir.

Mr. HASTINGS. And would you mind elaborating on exactly what the thought process is behind that and why?

Mr. GRUMBLY. Sure. We think with respect to most of the day-to-day decisionmaking that goes on at Department of Energy sites, that the site manager and the people who are at the sites are the right people to make those decisions. They are on the spot, they know what is best. We do not think that in the long run, we can run this quite diverse former weapons complex exclusively from Washington. It is unwise to do so. And really, this is one of the things that Secretary O'Leary has really tried to do in the 3-plus years that she has been in office. Every time we have delegated decisions that are truly simply site decisions, I think we get a good return on our investment.

There are some decisions—and I think we all know this—that involve maybe billions of dollars being spent, where the implications for the money being spent at one site have implications for all the other sites that we need to be involved in here in Washington. Even though they may be operational decisions, they have significant financial as well as policy consequences for everybody else.

For example, you brought up the nitric acid decision. I was an advocate to send this material abroad so that we can drive down the costs of particular buildings at Hanford, but a lot of people

raised issues about whether this was a decision that had anti-nuclear proliferation consequences.

Well, I did not think it did, and I won the day with the Secretary, but it was a reasonable question for people to ask because it involved national policy.

So I think if we carefully distinguish between those decisions that clearly are operating decisions and those decisions that have national impact, we ought to be able to come up with a pretty clear distinction in roles and responsibilities between what goes on in Washington and what goes on in the field.

Mr. HASTINGS. Not to keep going back to the nitric acid thing, but it did take longer than it should have.

I have one last question. You mentioned that in headquarters, you have cut personnel by 36 percent.

Mr. GRUMBLY. Right.

Mr. HASTINGS. Over how many years?

Mr. GRUMBLY. Well, we have cut the resources available in headquarters since the end of fiscal year 1995. So that from October 1st to now, we have cut headquarters resources by 36 percent.

Mr. HASTINGS. OK. That is not personnel, then; it is just resources?

Mr. GRUMBLY. Well, headquarters is composed of several elements. It is the Federal salaries that are involved plus the support services contractors that are involved in servicing the entire system.

The support service contractors, we have cut 61 percent since the beginning of 1993. Federal employees by the end of 1997 will be reduced 33 percent in headquarters. So we have made significant reductions, and to acknowledge the committee's role in this, this is in line and indeed in part at the insistence of where the House National Security as well as the appropriations committees were. So you all have assisted us strongly in making reforms that needed to be done.

Mr. HASTINGS. One last——

Mr. BATEMAN. Well, on that, I think we have got to determine that all time has expired.

Mr. HASTINGS. Very good. Thank you, Mr. Chairman.

Mr. BATEMAN. Mr. Pickett.

Mr. PICKETT. Thank you, Mr. Chairman. I want to go to the first panel of witnesses. I cannot help but have a very uneasy feeling that a lot of things are not right about this entire process. We seem to continue pouring money down a rat hole, and we have absolutely nothing to show for it.

As I read through the material here, I see that we are dealing with cost-plus contracts where there is no incentive on the contractor to save any costs or to get his contract done in a particular period of time.

I am looking at the CRS report, which asks, "Has the money gone to meet milestones agreed to with the regulators?" What incentives to the regulators have to terminate anything? Their jobs are going to continue as long as there is something to regulate, so naturally, they do not care whether it ever gets done or not.

"Were contractors timely in providing services to DOD?" Well, the contractors are going to stay in business as long as there is

work to be done there, so they do not care whether anything gets completed or not.

"Were services provided at a reasonable market prices?" Well, who is in competition with these kinds of services? Nobody.

And as you go on down the line, it looks to me like this is just a recipe for disaster, and we keep throwing money at it, and I do not see where we are getting anything. I think the way to get at it is to stop putting money into it, and I would like to hear from this group here what can be done to get this on some kind of basis where we know that something is being done, that there is an end in sight, and people know when we have achieved something.

Mr. REZENDES. I will take the first crack at that. First, on your comment on the contractors, I share a lot of those concerns. GAO has testified repeatedly on the problems with contract management at DOE. In fact, as I mentioned earlier, when we talked about privatization, 85 percent of DOE's budget goes to contractors to begin with, mostly Management and Operating [M&O] contractors.

One of the best characterizations I heard was that, basically, DOE was ahead of the Federal Government in privatizing decades ago, and that basically we turned this over to private contractors, and we in essence federalized the private contractors, and now we are in the process of trying to get them to act like for real contractors again.

In terms of your notion that the best way to get progress is to stop funding, I would caution you that the Department has entered into 110 compliance agreements throughout the country with regulators, at the local, the State and the Federal level, to do cleanup.

Mr. PICKETT. So what are they going to do—sue us?

Mr. REZENDES. Basically, yes, that is correct. In fact—and I will let Mr. Grumbly respond himself—he could be held personally liable for not requesting and doing everything within his power to comply with those agreements. He may want to add something to that.

Mr. GRUMBLY. Let me go back to the beginning and——

Mr. PICKETT. If you could be brief, because I want to hear from the other folks here who are supposed to be helping Congress understand how the Government's money is being spent, because I have to say I do not understand.

Mr. GRUMBLY. OK. Let me be very brief. By the end of this year, we will have recompeted $23 billion in contracts; every, single one of our contracts will be performance-based and will have cost-based and outcome-based incentives to get the kind of results that you want—every, single one.

And the folks down here at the table—anybody who says nothing has been accomplished in this area of contract reform has not been following what we do, and I know they will not say that.

Mr. PICKETT. Does anyone else want to comment on the first question I asked?

Mr. LEE. I was going to comment on your last question, which was is the end in sight. The answer is undoubtedly no. These are long-term and undoubtedly expensive propositions that would be hard for the Government to get out of.

I think Cindy mentioned a "miracle" that may happen, and whether this is a technological miracle or a combination of many

of the changes that are underway in terms of efficiencies, I do not know, but the end is undoubtedly not in sight, and we are facing a rather expensive proposition in the future. And I really do not have anything to offer as far as any kind of "miracle" cure for lowering these costs greatly so that they are not as steep as, for instance, my charts predicted.

Mr. PICKETT. Well, the fact is that nobody is accountable. You have 50 States with their hands in the pot; you have the Federal Government with 50 agencies competing with each other for preeminence in this field, and all we are doing is throwing taxpayers' money at it and getting nothing in return. I think it is about time we did something.

We look to the Congressional Research Service, the General Accounting Office, and the Congressional Budget Office to try to keep Members informed up here about what we can do that is sensible and common sense to get the Government's business done without throwing money away.

Ms. WILLIAMS. I think CBO certainly would agree with that. You mentioned that the regulators have no incentive to finish this job. Our sense is that the regulators are working in good faith. They are working under the laws of the land as they understand them, and there are overlaps in responsibility among the regulators, which means you often have more regulators than you would want in a given situation; and they are working under the laws as they understand them about land use and cleanup standards, depending on the future land use.

So I think probably the biggest way to bring costs down, assuming that that is what the Government wants to do, is to make the legislative reforms that DOD and DOE have both asked for. The second biggest way to get costs down is probably to work on technologies and try to get the technologies implemented, try to make some progress with the regulators so they are willing to let people experiment with the new technologies.

So those are probably the two biggest ways. I would have to agree with Mr. Rezendes that the way to get overall costs down is not to cut the budgets in the next couple of years, because the budgets in the next couple years to a large extent are fashioned around paying for the agreements that are already in place, and if you have to renegotiate those agreements it is going to cost money and possibly fines.

Mr. BATEMAN. Thank you very much.

With that, we will ask Mr. Talent for any questions he may have.

Mr. TALENT. Thank you, Mr. Chairman. I am going to yield to Mr. Hastings.

Mr. HASTINGS. Thank you very much. I appreciate the gentleman yielding.

I want to follow up with you, Mr. Grumbly. You talked about at the end of 1997, headquarters staff will be cut by approximately one-third, and in your written testimony on page 20, you say that "the contractor work forces have been cut from 50,000 to 30,000." That is about a 40 percent cut, and that exists right now.

Now, part of what we said in the authorization was that if there were going to be any cuts, they would go to headquarters first and

then keep the people out in the field, yet this suggests something different than that. Am I reading it wrong?

Mr. GRUMBLY. Yes, I think you are reading it wrong. As a result of the 1996 budget action, we took a 36 percent reduction in headquarters costs even though the overall program only took about an 8 percent reduction from the President's budget.

I think that as a result, by the end of 1997, headquarters Federal personnel will be down 33 percent, and when you take a look at the relative costs, I will plead guilty to the charge that says I have focused on where the large costs are in the complex. The large costs are with the roughly $5.5 billion spent by our contractors, not the $400 million spent on Federal salaries. So in the 3 years that I have been here, I have concentrated to make major cost reductions in areas where we knew we were spending too much money and not getting enough output.

I am as frustrated as Mr. Pickett is that it has been difficult to show the kind of output that we needed to get, and it seemed to me that the best way to make this happen was first to reduce this huge contractor work force that was in place to essentially build weapons when we did not have the weapons to build anymore. So we have been focusing our efforts there, and in the last year, we have turned our attention to reducing the headquarters costs as well.

But if you follow the Willie Sutton theory, which is that you "go where the money is," where the money is here is with the contractors out in the field. But I agree that Federal employees and Federal salaries have to take their knocks, too, and I think we are doing that.

Mr. HASTINGS. One last question, if I may. On the DOE orders, I have in my office a 3-feet-high stack of DOE orders, and that represents about 25 percent of the DOE orders. Part of it is driven by Superfund and some of the other things that have been mentioned here. I know that you as a department have made a real attempt to try to reduce those orders, and I congratulate you for that.

Would you feel much more secure if we could make some statutory changes so that you would know where you need to go and not have to wonder about how an interpretation of a statute is as it relates to orders? Would you feel much more secure being able to make another attempt or a continuing attempt at reducing DOE orders at all the sites?

Mr. GRUMBLY. Well, I think we need your continuing oversight and scrutiny with respect to reducing orders so that we get the right balance between protecting the safety of our workers, because a lot of our orders particularly at nuclear sites, as you know, go toward protecting people from excess radiation exposure. And as you also know, you can essentially be dead before you know it when you are in contact with radiation. So we need a certain disciplined way of doing business so that we make sure that nobody gets hurt.

Having said that, it does seem to me that there is a lot of underbrush that has grown up over the years inside the DOE in terms of orders that are there. So if we could fashion a way that did not direct us on any specific order, but continued to push us to review these orders, to make sure we have the minimum necessary to protect workers and to ensure that we have gotten our place in shape,

if we can fashion that kind of legislation, then we would be happy to support it with you.

Mr. HASTINGS. OK. That sounds like somebody looking at regulations to look at regulations, but I appreciate the difficulty that you are going through. What we need to do is eliminate those instances like at Hanford—and maybe it happened at other sites—where they outlawed an X-acto knife because it cuts you. Well, by definition, an X-acto knife will do that. And I do not know how much that cost because work could not get done, but nevertheless that is one of the examples.

I yield back the balance of my time.

Mr. TALENT. And I will yield back, Mr. Chairman.

Mr. BATEMAN. Thank you very much, gentlemen.

We next turn to Mr. Evans.

Mr. EVANS. Thank you, Mr. Chairman.

Mr. Grumbly, last year in our authorization bill, this committee included a $742 million cut in the environmental restoration and waste management account despite warnings that it could result in significant problems in maintaining site safety, making progress on cleanup programs, and other consequences. Fortunately, this severe reduction was reduced to $451 million by the conferees.

Could you tell the committee what effect a significant cut of this kind in your budget would mean in terms of environmental restoration and compliance efforts?

Mr. GRUMBLY. The first thing that a cut of that magnitude meant is that we essentially have to stretch out the program in many cases. This is clearly a program in which time is money. The longer you push things out that are not necessarily regulatorially related, the more expensive they are going to be in the long run, and we have suffered a fair amount of that. And those are consequences that you will not see for a couple of years, but it is the sort of thing that we have been concerned about in the military budgets as to the readiness of our forces over the years. You can let them go for a while and not see the consequence, and then, all of a sudden, you are essentially going to see the consequence if something happens.

So we have had to stretch out a few things that are in place.

With respect to regulators, we have been very fortunate in that we have been able to work together with the regulatory authorities to try to make sure we are doing things at Ford Escort prices when they used to be done perhaps at Cadillac prices. And I think we have been able to make some adjustments, but we cannot continue to take cuts of that magnitude because very quickly, we are going to get into the nuclear safety problems that I alluded to before.

Our sites have the most dangerous material in the world on them, bar none. The plutonium that is there can catch on fire. If it catches on fire, it will leave the site, it will go down the street and infect the houses that are there. If the spent fuel we have at these places is corroded and we are not treating it appropriately, we can have significant health problems not only for the workers but for people who are off-site. If we do not drain the materials that we have in the tanks, they will leak into the soil and into the groundwater, and we are going to have the Columbia River in Washington, for example, contaminated.

So you have serious issues of public health and the environment that are at stake if we drop this budget too much more.

Mr. EVANS. Thank you.

Secretary Goodman, last year DOD requested $1.622 billion for DERA. Congress appropriated $1.411 billion—in other words, $211 million less than what DOD and the administration said was needed to meeting minimal cleanup and legal obligations.

You have requested $1.3 billion for the cleanup program this year. With the funding for fiscal year 1997 almost $300 million below the requested amount for fiscal year 1996, what is DOD doing to guarantee that reduced funding does not affect agreements made with the States under the Defense-State Memorandum of Agreement and other obligations?

Ms. GOODMAN. Mr. Evans, our funding for cleanup in fiscal year 1997 is about the same as it was in fiscal year 1996. If you include how we fund cleanup in the DERA program, which is for active bases, plus the funding in BRAC, our funding in base closure is actually increasing in fiscal year 1997. That is because as a result of last year's base closures, we now have more closing bases. So the money is shifting out of DERA and into BRAC, and it is about the same level of funding.

Let me give you an example of what we are getting for that. We now have hundreds of people in communities from Cape Cod to California that have to get bottled water from the Department of Defense because we have contaminated their water supply. If we are not able to continue cleanup, there will be hundreds more people who will have to get bottled water because we have contaminated their water supply.

Much of what we are trying to do right now is stop contamination from spreading. For example, in Cape Cod, at the Massachusetts Military Reservation, there seven contaminant plumes emanating from this base, spreading like the tentacles of an octopus into the surrounding community. We hope this summer to start a project that will contain that contamination from spreading. We will have to go into the back yards of hundreds of citizens of that community in order to install devices that will stop that contamination from spreading. It is not even going to be a complete cleanup. We are hoping at best now to stop it from spreading further into this community.

That is an example of the kind of thing we are doing in the cleanup program. So I believe that that work is very important. We need to have stable funding to continue this work. I believe the end is in sight for the DOD cleanup program. We have about 20 years left in this program. It is not that much longer than a weapons system acquisition program today, and that is not actually a good sign, but is a natural fact. OK? We have about 20 years left to get remedies in place at all of our installations. We will be doing long-term monitoring for some time after that, but the next decade is very important, because we have done the studies; we are investing over 70 percent of our dollars in actual cleanup, and we have already achieved some progress.

We have determined, despite what was said earlier by this panel of witnesses, much of which I agree with, but in this area, let me give you some facts. We have determined that almost 10,000 sites

need no further action. Out of a total inventory of 24,000, that is about 40 percent of the program where we have already finished that work.

We have completed cleanup at over 800 sites. We also have interim removal actions underway at 1,400 sites. That should not be mistaken for lack of progress. That is very much progress toward the final cleanup. The benefits of these interim actions are cumulative. For example, what they do is remove that contaminant source, like those plumes on Cape Cod, so that they spread no further. That is the best that we can hope for in many of our communities today, but we have to continue these interim actions, and we should be credited there with recognizing that that is progress toward cleanup. I believe you will hear from a later panel, particularly from Clean Sites, about how our pipeline is progressing in that regard.

Mr. BATEMAN. Thank you, Madam Secretary.

Mr. Sisisky, you had a further question, and after that, I am going to ask the committee's indulgence to excuse this panel in order that we may turn to the third panel.

Mr. SISISKY. I am sorry, but I just wanted to follow up on what Mr. Pickett said. I compliment you on performance-based contracts—I think that is the right way to go—but let me ask you this. It just dawned on me—do we have many bidders on major contracts like Savannah River? Do we have major bidders down there?

Mr. GRUMBLY. We have had a lot of bidders on every contract except for Savannah River. Touche.

Mr. SISISKY. OK.

Mr. GRUMBLY. It is taking us longer to negotiate a contract because with only one bidder on that contract—who was responsive—what we have had to do is go out, assess what are the costs at Savannah River relative to our other sites and to the private sector and benchmark what we ought to be getting as a Government for the price. So what our negotiators have now in front of them as they sit down with the corporation that responded is a set of "what it ought to" costs so that we can negotiate with some position of strength with the bidder that came in and not be in a situation of simply having a monopolistic situation.

I am happy to say that that situation has not occurred at any of the other major sites. We are expecting to get bids in at Hanford within the next 4 days.

Mr. SISISKY. How many companies did you have bidding?

Mr. GRUMBLY. We expect to have three major teams of contractors bidding for that site, and I think we are going to have vigorous and healthy competition, the same way we did at——

Mr. SISISKY. But you understand what my point is. As a member of the board of directors of this thing, it kind of worries me a little bit.

Mr. GRUMBLY. I absolutely understand the point, and it is a fair point.

Mr. SISISKY. Thank you—excuse me—what are the plumes at Cape Cod? Would you mind telling me? Did you say "plumes"?

Mr. BATEMAN. P-l-u-m-e-s, plumes.

Ms. GOODMAN. Correct. That is contamination that is spreading. It is spoken of as spreading in a plume, like a widening arc.

Mr. BATEMAN. In deference to the gentleman from California, Mr. Dellums.

Mr. DELLUMS. Thank you for your indulgence, Mr. Chairman. I have just two additional questions. Due to the expedited process, we will probably not see Secretary Goodman again before markup, so there are two questions I would like to ask, and I will ask them simultaneously.

One, you are spending about $300 million on an annual basis directed at pollution prevention, aimed at cleanup cost avoidance. Can you tell the committee what is your perception if the value of that program, what we are getting back from it, and why is that a significant part of your environmental cleanup strategy?

The second question that I would like to ask—Mr. Chairman, I thought Secretary Goodman did an excellent job in her opening statement in dealing with this question, but I want to put it right before everyone. Last year, we were inundated at the subcommittee level and at the full committee level with the notion that in some way, environmental restoration was not relevant to the Department of Defense. And a number of my colleagues said this is not defense-related; we are taking important dollars from readiness and weapons systems and so on. And I thought that you, Madam Secretary, did an excellent job of stepping up and addressing that issue, and I would like you to do it again in a very pointed fashion at this point in the record because we are going to hear that rhetoric again.

Mr. BATEMAN. And I believe you can do that with great dispatch, but thoroughly. [Laughter.]

What is the prize?

Mr. DELLUMS. No prize. I do not hide my values on this issue; I am straight ahead on that.

Ms. GOODMAN. Thank you, Mr. Dellums, and I hear you, Mr. Chairman.

I believe we get extremely good return on our investment in pollution prevention. This is where we are trying to eliminate the use of hazardous materials in our processes today so that we will not have to clean up tomorrow. We do not want to be creating a cleanup program for our children and our grandchildren with what we are doing in our weapons systems today. So I believe that that investment is extremely important.

Two examples of the way we are making that investment work. One, we have created hazardous material pharmacies at all of our bases now; we are in the process of doing that. That means we are managing the hazardous materials like you dispense drugs from a pharmacy. Only give out the amount you need. That saves money because it is very expensive to dispose of hazardous materials today. One depot alone can save over $5 million a year just by better management of their hazardous materials.

So these pollution prevention efforts are very important. That is at the installation level.

We are also now trying to include pollution prevention in the way we design our new weapons systems. What creates a lot of waste and cleanup in our weapons systems today? Painting and depainting. All that paint on aircraft, on tanks, on ships involves a lot of hazardous material. In fact, we have just released our first

toxic release inventory report for the Department of Defense, and we found that most of our top 10 chemicals are solvents which are used in painting and depainting. We are now very actively trying to find alternatives for them, and we have found many alternatives. Some of them are as simple as water-based cleaners rather than solvent cleaners; some use baking soda; some use lemon juice. These are very simple products, but by looking for these alternatives and investing modestly in technology and pollution prevention, I believe we are getting a very good return on that investment.

As to your second question, Mr. Dellums, there is a strong connection between environmental security and the three major priorities of the Department of Defense—readiness, quality of life and modernization.

On readiness, a key requirement of readiness is the access to air, land and water that we need to train and test. We need to use that 25 million acres of land that we have for our key training missions. If we are not good stewards of that land, we will not continue to have access to it.

On quality of life, we want to protect the people who live and work and play in our communities around our military installations, both those who are working for DOD and the citizens around it. Therefore, we have to provide them with a safe healthful environment.

And finally, on modernization—you are either going to pay now or pay later. That is why we are trying to design hazardous materials out of our weapons systems, like the pollution prevention and technology efforts I described earlier. I believe environmental security is important to the defense mission and that it is recognized by our commanders today as such.

Mr. BATEMAN. Thank you, Secretary Goodman. One of your comments leads me to want to forewarn you that there is a program I want to call and talk to you about which I think fits very much into your environmental preventive program and would be an extremely wise expenditure of funds. But in the interest of time, I will speak to you about that later.

With that, I want very much to thank the panel. You have been extremely helpful and very patient with the committee, and you have appreciation for it. We will be submitting questions for the record on a number of these items which, if it is not too much of an imposition, we would like to have a 2-week turnaround on.

Mr. GRUMBLY. Absolutely, Mr. Chairman.

Mr. BATEMAN. With that, we will excuse the first two panels and invite the third panel to come up.

Ms. GOODMAN. Thank you, Mr. Chairman.

Mr. HUNTER. Mr. Chairman, I want to remind Mr. Rezendes that his door prize is coming; it will be delivered to you, sir.

Mr. REZENDES. Thank you very much.

Mr. BATEMAN. It is now my pleasure to introduce the members of the third panel: Mr. Joseph Nemec, president of Bechtel Hanford, Inc.; Mr. Jim Gallagher, executive vice president, Government and Environmental Services Co., Westinghouse Electric Corp.; Dr. Albert Narath, president and chief operating officer of the energy and environmental sector, Lockheed Martin Corp.; Mr. Stephen

Kahane, president, federal facilities programs, ICF-Kaiser Hill; and Bill Birkhofer, Hazardous Waste Action Coalition.

Thank you all for being with us, and with that, Mr. Nemec, if you would like to lead off, we would be happy to hear from you.

STATEMENT OF JOSEPH F. NEMEC, PRESIDENT, BECHTEL HANFORD, INC.

Mr. NEMEC. Thank you, Mr. Chairman and members of the subcommittee. My name is Joseph F. Nemec, and I am President of Bechtel Hanford and responsible for the Hanford environmental restoration program. My testimony has been submitted for the record, and I would like to use the time I have to explain to you some of the progress we are making on the job.

Mr. BATEMAN. Without objection, all of your prepared statements will be made a part of the record, and you may proceed to summarize if you would.

Mr. NEMEC. Thank you.

I have brought some charts along to illustrate some of my points. Our role is to remediate soil and groundwater that has become contaminated as a result of past practices at the Hanford site and to decontaminate and decommission surplus facilities—generally, nuclear facilities.

In order to accomplish that job, we have five success criteria—first, to manage all of our work as a project—and by that, I mean recognize that all of our work has a definite beginning and end and to strive for that end. We have established project teams lead by experienced project managers who have the authority and responsibility to carry out their work and are given the resources to get it done. The remainder of our organization solely exists to support those project teams.

The second element of success is to maximize subcontracting, to get into the field and get more work done, to do more and more work for less and less money, and finally, to achieve a sustained funding level. We as a contractor can accomplish the first four of those objectives. We need Congress' help to accomplish the fifth.

A key feature of our approach is to maximize the specialty subcontractors that we use on the job. The advantage of that is that the contractors are brought on for the duration of their assignment, and then we can get on with doing other things without long-term commitments to a large work staff. In 1996, we will perform 72 percent of all of our work by subcontract.

We are also moving more and more of each budgetary dollar into actual field work. In 1994, only 35 percent of every dollar that we spent went to field activity. In 1996, it will be 72 percent. And while that is good, it is not good enough. Our goal is to spend 90 percent of every dollar on field activity.

To illustrate how we are accelerating the cleanup of the site, over the next 2 years, this fiscal year and next, we will see a 100-fold increase in the amount of waste that is remediated at Hanford, we will make a 20-fold increase in the amount of contaminated groundwater we treat, and we will complete deactivation of the N Reactor as well as decommission over 78,000 square feet of contaminated buildings.

We are doing all of that work for less and less money. As an illustration, using best commercial practice and——

Mr. HUNTER. Excuse me, sir. How many thousand square feet are you decommissioning?

Mr. NEMEC. Seventy-eight thousand.

Mr. HUNTER. Thank you.

Mr. NEMEC. By using commercial practice, competitive subcontracting, and our project focus, we did $225 million worth of work in fiscal year 1995 for $175 million.

We are also looking at the total estimated cost of the job, and we are working closely with DOE and the regulators to look at our life-cycle costs. We have come up with more realistic cleanup scenarios, and we have reduced the amount of sampling and paperwork, and that has resulted in an overall reduction in the estimate for the entire job of $5 billion and 9 years' reduction in the schedule.

As an illustration of that, we have reduced sampling costs over the next few years from $1.3 billion down to $115 million. It still sounds like a lot of money for sampling, but it is over a $1 billion savings in the program.

The last element for success is one that we need your help on. Outyear funding for the Hanford Environmental Restoration Program is about $121 million per year. Since we have all the infrastructure in place, a relatively small increase in the project funding will greatly increase the amount of cleanup that we can accomplish.

For example, increasing our projected funding by about $29 million a year, which is a 24-percent increase over the $121 million, will yield a 75-percent increase in the number of waste sites that we can clean up through the year 2002.

Achieving these results has been possible because of implementation of appropriate contractor reform by DOE—and we are a performance-driven contract—the continued interest of the Washington State congressional delegation, particularly Congressman Hastings, and the commercial experience and the project focus that we have brought to the job. Together, we are indeed changing the way business is being done at Hanford.

I would like to thank the committee for this opportunity, and I will be happy to answer any questions you have.

Mr. HUNTER. Thank you, Mr. Nemec. Chairman Bateman had to leave for a brief phone call, but let us go right to Mr. Birkhofer.

[The prepared statement of Mr. Nemec follows:]

TESTIMONY OF

JOSEPH F. NEMEC

PRESIDENT

BECHTEL HANFORD, INC.

ON

DEPARTMENT OF ENERGY'S

ENVIRONMENTAL MANAGEMENT PROGRAMS

SUBCOMMITTEE ON MILITARY PROCUREMENT

AND

SUBCOMMITTEE ON MILITARY READINESS

HOUSE COMMITTEE ON NATIONAL SECURITY

UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 21, 1996

Testimony of Joseph F. Nemec*
before the House Committee on National Security
Subcommittees on Military Procurement and Military Readiness

March 21, 1996

Chairman Hunter, Chairman Bateman, Congressman Shelton, Congressman Sisisky, members of the subcommittee. My name is Joseph F. Nemec. I am President of Bechtel Hanford, Inc., a company within Bechtel National, Inc., and responsible for the Hanford Environmental Restoration Contract. We began work on this contract in July 1994.

Bechtel National is a leading environmental contractor for both the Departments of Energy and Defense. Briefly, while we are the environmental restoration contractor at Hanford, we are also part of the DOE effort at Savannah River and Oak Ridge, and recently won the management and operations contract for the Nevada Test Site. Our DOD activities include four Air Force site specific cleanup contracts, a Navy Remedial Action Contract, and two Navy CLEAN contracts.

A copy of my testimony has been submitted for the record. Included with my testimony is a briefing book describing the progress we have made at Hanford, and I would ask this be included as part of the record.

* - A biography of Mr. Nemec is included as Attachment 10

As the Environmental Restoration Contractor at Hanford our mission is to work closely with our DOE customer, the Tri-Party Agreement agencies (EPA and the Washington State Department of Ecology), and stakeholders in planning, managing and executing a full range of cleanup activities. We are responsible for the portion of work at Hanford that deals with contaminated soil and groundwater, and with inactive nuclear facilities (Attachment 1). Our work accounts for 10 to 15 percent of the Hanford site budget. Other contractors are responsible for the high-level liquid waste in underground storage tanks and the spent nuclear fuel.

I'm proud to report to you today that we are cleaning up the soil, groundwater, and inactive nuclear facilities contaminated by past practices at the Hanford site. And we're performing this cleanup work at a substantial cost savings. This description of progress at Hanford may not be consistent with things you've heard in the past. Hanford has been depicted in the media as a place where lots of money is spent but little cleanup is accomplished. Some of that criticism may have been justified at the time, but it's not an accurate picture now. We're literally moving dirt instead of moving paper. Here are a few examples of accomplishments in the Hanford environmental restoration project:

- Performed $225 million worth of work scope for $175 million during FY 1995.
- Developed a long-range cleanup baseline plan that reduced estimated cleanup time by nine years and lowerd the life cycle cost of the project by $5 billion.
- Met all of the milestones and cost savings goals established by the Tri-Party Agreement and DOE.
- Shifted from paper studies to real cleanup work.

Achieving these results has only been possible because of the implementation of appropriate contract reforms by DOE, the continued interest of the Washington State Congressional delegation, particularly Congressman Hastings, and the commercial experience of Bechtel. Together, we are changing the way business is done at Hanford.

ELEMENTS FOR SUCCESS

When BHI was awarded this contract, we brought a project management focus, approach, and attitude toward the cleanup, with a goal of completing the cleanup in as short a time as possible and for the least cost. We've had major success in accelerating the cleanup and reducing costs. There are five principal elements for success in the environmental restoration program:

- Manage the work as a project.
- Maximize subcontracting
- Action, not paper.
- Do more for less.
- Achieve a sustained funding level.

A good contractor can provide the first four of those elements for success. Only Congress can provide the fifth. I'd like to describe for you how we have implemented the first four elements for success, and provide more information about the importance of sustained funding.

MANAGE THE WORK AS A PROJECT

The mission of cleaning up the environment at Hanford is fundamentally different from the Cold War mission of producing plutonium, a mission that ended in the late 1980s. It's the difference between an operations approach and a project management approach. This difference is illustrated in Attachment 2, a chart that shows the typical life cycle of a manufacturing facility.

The Life Cycle of a Facility

During the initial construction phase, activities involve clearly defined, non-repetitive tasks, executed by specialty subcontractors. When the facility goes into operation, work is usually focused on more repetitive functions, with an in-house work force, production-line procedures, and a multi-layered management structure. As the facility's operating life ends, a deactivation and restoration phase is initiated, where once again the work becomes non-repetitive and task oriented. It's important to note that an operations organization is designed to stay in business for a very long time. By contrast, a project has a beginning, a middle, and an end. A project management organization is designed to finish the job and move on to a new assignment.

During the construction phase at the start of this life cycle, and the restoration phase at the end, the most efficient approach is to have a project management organization with dedicated project teams focused on specific tasks. Hanford is currently transitioning from the operations phase to the restoration phase. At this point in the life cycle of Hanford facilities, a project management approach is the best way to achieve efficiency.

Bringing Project Management to Hanford

To effectively manage the restoration work, we implemented the "project" approach. This is the same approach that Bechtel has successfully used for many years to manage large, complex projects worldwide. Project teams are at the heart of a project management organization (see Attachment 3). Each team is headed by a project manager, who has the resources and the authority to get the job done and is held accountable for cost, scope, and schedule. Work is planned and executed through the teams, and, after completing the work scope, these teams are disbanded and the resources reassigned. For this approach, costs and schedules must be based on a well-defined baseline scope so that resource loading can be predicted and balanced within the overall program. Additionally, effective project control systems are needed to track the work closely, so that progress and costs can be monitored and reported quickly.

Bechtel Hanford brought this type of project organization to our assignment at Hanford, and our Department of Energy customer revised their organization to mirror our project approach. Bechtel's contract with DOE is performance based; we earn fee for superior performance. It is an approach that is paying dividends. DOE is a demanding customer that only rewards us for performance, but they've also established a partnering relationship with us. DOE and Bechtel developed a shared list of cleanup objectives that meet the concerns of Hanford's regulators and stakeholders, allowing us to focus on priority projects.

MAXIMIZE SUBCONTRACTING

As I noted, a project management approach involves extensive use of subcontractors. These specialty firms are brought in to provide a specific service, and they go away when the job is done.

We're using competitive subcontracting for the vast majority of cleanup work. If you want to perform environmental restoration work at Hanford you're going to have to go through a competitive bidding process. We have 171 major subcontractors in place to perform specific cleanup projects; 72 percent of our funding went to subcontractors in 1996 (Attachment 4).

ACTION, NOT PAPER

One of the criticisms of Hanford has been that we're moving a lot of paper but not moving much dirt. During the early phases of environmental restoration at Hanford, much of the work was focused on environmental studies to determine the nature and extent of contamination and devise a cleanup strategy. I can now report to you that in the Hanford environmental restoration program we've worked with the regulators to streamline the process so we minimize paper studies and get to the field sooner.

In fiscal year 1995, our first full year on the project, 54 percent of the money we spent was in planning and preparation activities; 46 percent went towards work in the field. This year, we are on track to spend 72 percent of our funding on actual cleanup (Attachment 5). Some may consider this respectable, but it is short of our goal to have 90 percent of the program funding

spent on field work. Let me provide you with specific examples of the work we performed in Fiscal Year 1995:

- Treated 17.1 million gallons of groundwater
- Stabilized 2,118 acres of surface contamination
- Excavated over 20,000 cubic yards of contaminated soil
- Decontaminated and demolished six huge retention basins and in the process recycled 6.2 million pounds of steel
- Removed 141,000 pounds of carbon tetrachloride from groundwater
- Decontaminated and/or decommissioned 32 buildings
- Removed over 44,000 highly radioactive fuel spacers away from the Columbia River
- And we're nearing completion of a massive Environmental Restoration Disposal Facility (ERDF) to receive waste generated as we excavate contaminated soil from areas near the Columbia River.

The ERDF project is an example of how we've brought the best commercial practices to Hanford. This massive disposal cell was designed and will be operated to commercial standards. As a result, it will have the lowest disposal costs for hazardous and mixed waste materials of any DOE site, and possibly any similar commercial operation in America. We estimate disposal cost at this facility, including packaging, transportation, amortization, and related overhead costs, will be approximately $55 per cubic yard. By comparison, disposal costs for municipal garbage at the City of Richland's landfill are about $60 per cubic yard, and it is not equipped to handle hazardous or low-level radioactive materials.

We are now in a position to accelerate the cleanup even more (Attachment 6). During 1996 and 1997 we're poised to:

- Excavate 100 times more contaminated soil
- Treat 20 times more groundwater
- Complete deactivation of the N Reactor
- Continue a significant decontamination and decommissioning program to get rid of hazardous facilities, reducing hazards to works and maintenance costs to DOE.

MORE FOR LESS

We not only did a great deal of cleanup work during 1995, we also achieved major cost savings. In planning our 1995 work, we were presented with a scope of work that had been estimated to cost $225 million, but the projected funding was much lower. By implementing our focused project management approach, using best commercial practices, and maximizing the use of competitive subcontracting, we were able to perform the full $225 million worth of scope with funding of $175 million (Attachment 7).

In addition to those operational cost efficiencies, we have also made major reductions in the life cycle cost of the environmental restoration project. Working with the regulators and stakeholders, we helped develop more realistic cleanup standards, more accurately defined the quantities of soil to be excavated, and significantly reduced the need for sampling and analysis. As a result of these efforts, we've reduced the total projected cost of the project by about $5 billion and cut nine years off the schedule (Attachment 8).

SUSTAINED FUNDING

We have achieved the first four of the five elements of success. We're managing the job as a project; maximizing subcontracting; moving dirt not paper; and doing more for less. The fifth element of success is sustained funding.

As I've shown, we've made a great deal of progress toward cleaning up the site and reducing costs. However, realizing the maximum benefit from our efforts requires sustained funding at a level sufficient to cover infrastructure costs and allow cleanup to proceed on a logical schedule.

It's a situation I liken to building a house. Think of my company as the general contractor hired to build the house. The owner has the property, all the permits, and completed plans. We have already poured the foundation. We're ready to continue construction, but the owner only provides money to complete framing the house. We finish the framing, and then wait for the owner to release funds to put on a roof. " During this delay, standby costs are incurred by the owner. The owner finally releases funds to start roofing, but midway through the job says he's run out of money and we have to stop work. Again, the owner must pay for unproductive standby."

This is not the way to construct a house, and it is certainly not the way to run the cleanup of Hanford. We have built a strong foundation at Hanford. Congress and DOE have made major investments in the Hanford cleanup. We have an efficient operation, a good relationship with our regulators, and a clear path forward. We're making progress, and we're poised to do

even more. For example, a 24% increase in our funding would result in a 75% increase in the number of waste sites we can complete in the area along the Columbia River (Attachment 9).

Sustained funding is my main recommendation to make to this committee. Since I have the opportunity, there are several other suggestions I would make to fortify the structure of DOE's environmental management program:

- Empower DOE field operations managers to shift funding between programs.
- Run these programs like projects, with well defined start and finish dates, while providing project managers with the resources and the authority to do their job.
- Continue building trust with the regulators and stakeholders, challenging them to arrive at reasonable cleanup standards, as opposed to green field conditions.
- Apply DOE orders, or other agency requirements, only when they add real value to the project. Compliance with esoteric administrative orders, born out of DOE's production era, no longer apply to the department's environmental management mission. Complying with out-of-date, out-of-synch policies ties up precious resources and time.

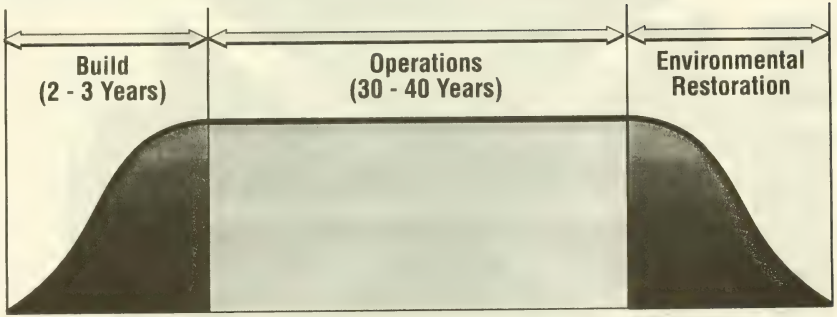
In conclusion, I believe we can accelerate progress by providing stable funding, partnering between DOE and its contractors, and managing the work like a project. I'd like to thank the members of this committee for this opportunity to appear before you, and would be happy to answer any questions.

Environmental Restoration Contract

- About 12% of total Hanford budget
- Contract started in July 1994
- Soil - Groundwater - D&D

(Does not include spent fuel or tank waste)

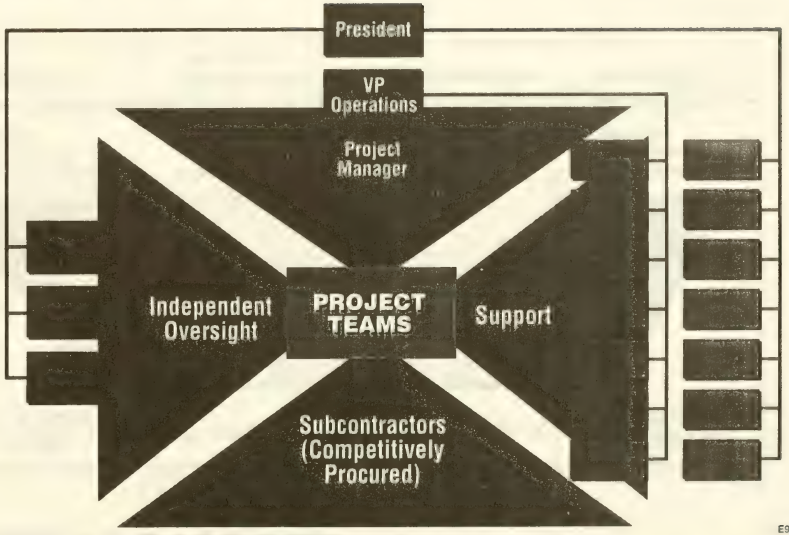
Elements For Success
Manage as a Project



• Project/Task teams • Utilize specialty contractors	• Organized by operating function • In-house work force • Numerous management layers	• Project/Task teams • Utilize specialty contractors
• Non-repetitive task	• Repetitive tasks, well-defined production-line procedures	• Non-repetitive task

E9603039 10

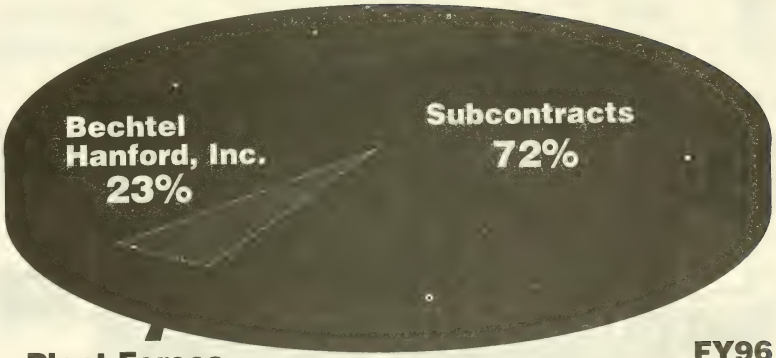
Elements For Success
Manage As a Project



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ATTACHMENT 3

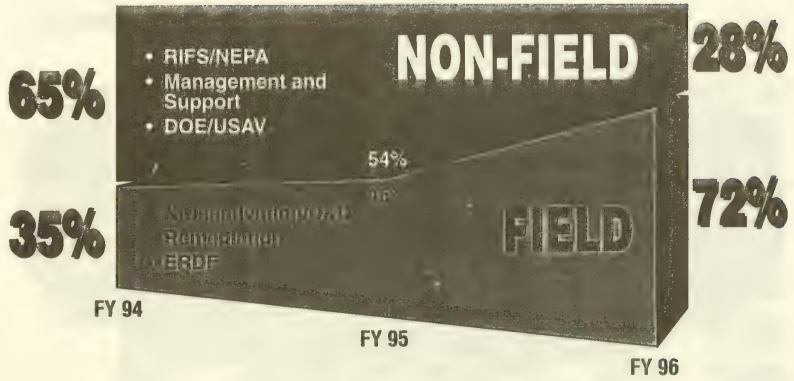
Elements For Success
Maximize Subcontracting



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ATTACHMENT 4

Elements For Success
Action Not Paper

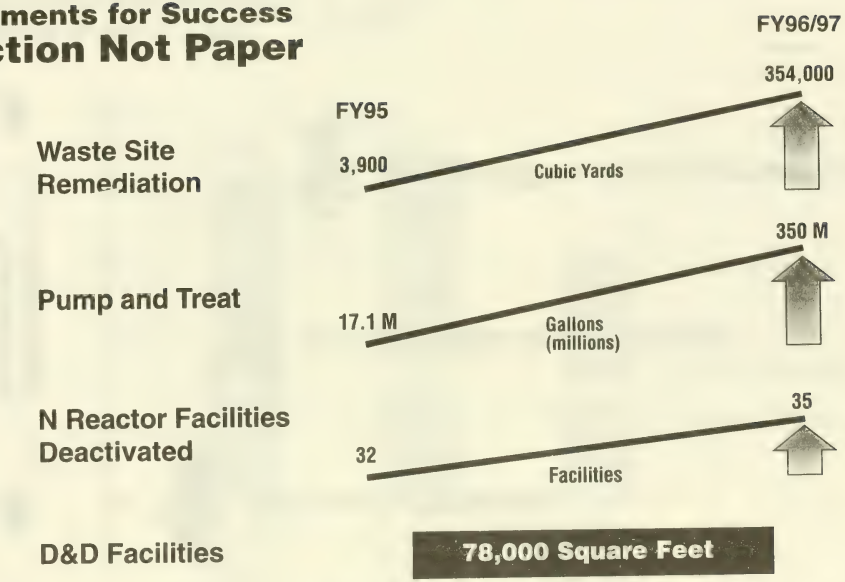


% of Funding

E9603039.5

ATTACHMENT 5

Elements for Success
Action Not Paper



E9603039.6

ATTACHMENT 6

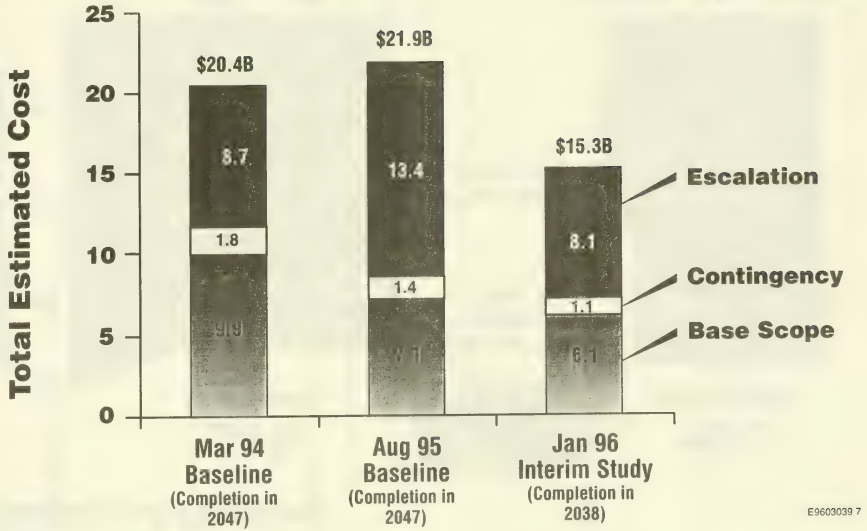
Elements For Success
More For Less



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ATTACHMENT 7

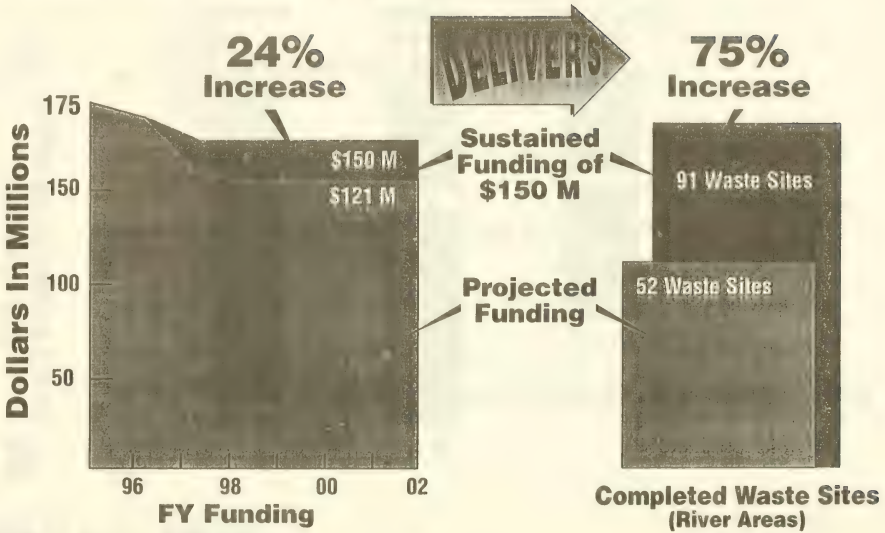
Elements for Success
More For Less



E9603039 7

ATTACHMENT 8

Elements For Success
Sustained Funding



ATTACHMENT 9

Biography of Joseph F. Nemec

Joseph F. Nemec is President of Bechtel Hanford, Inc., the Environmental Restoration Contractor for the U. S. Department of Energy's Hanford Site. He has more than 25 years' experience in reactor operations, nuclear facility decommissioning, and environmental restoration, including two previous assignments at Hanford.

Mr. Nemec joined Bechtel in 1982 and has managed several large environmental restoration projects, including DOE's Formerly Utilized Sites Remedial Action Program and the Oak Ridge National Laboratory Remedial Investigation-Feasibility Study. Before coming to Hanford for the environmental restoration contract in 1994, he was manager of Bechtel's 550-person Oak Ridge (Tennessee) Office, which provides environmental restoration services to a variety of government and private clients.

Mr. Nemec worked at Hanford from 1965 to 1971 in reactor operations with UNC Nuclear Industries. From 1971 to 1974 he held management positions with United Power Association on the Elk River Reactor Decommissioning Project. He returned to UNC at Hanford in 1974, where he was involved in several facets of environmental restoration and nuclear facility decommissioning and played a key role in developing the DOE Surplus Facilities Management Program. He is a native of Butte, Montana, and holds a B. A. degree in physics from the university of Montana.

Attachment 10

STATEMENT OF WILLIAM J. BIRKHOFER VICE PRESIDENT, SVERDRUP CORP. FOR THE HAZARDOUS WASTE ACTION COALITION ON DEPARTMENT OF DEFENSE ENVIRONMENTAL RESTORATION AND DEPARTMENT OF ENERGY ENVIRONMENTAL MANAGEMENT PROGRAMS

Mr. BIRKHOFER. Thank you, Chairman Hunter, Mr. Dellums, members of the committee. My name is Bill Birkhofer, and I am Vice President of the Sverdrup Corporation. We are a St. Louis-based company engaged in environmental cleanup, pollution prevention and facilities development for DOD, DOE, and other Federal agencies.

I am here today representing the Hazardous Waste Action Coalition, a coalition of some 100 cleanup contractors engaged in real cleanup at DOE and DOD facilities. In the interest of time, I will just share some brief observation and ask that my statement be included in the full record.

First, with regard to program management and performance of the DOE and DOD cleanup programs, we are achieving real results. Progress is improving, and the health of these programs is increasingly good, measured in cleanups undertaken and cleanups actually completed, dollars going to real cleanups, and other performance measures.

We believe there is a reason for this success, and the reason is that DOE, DOD, and its other stakeholders, including the contracting community, are working very, very hard on some of the things that Joe talked about. The contract reform initiative at DOE, the risk-based prioritization system at DOD, the implementation of measures of merit so that we can track actual progress are all good examples of what is going on there.

As a result of these reforms, we are drawing more and more interest in these programs and in competition, particularly from smaller and mid-sized firms, either as primes or as subcontractors.

With regard to the funding issue, obviously, we understand as all of you do that we are in a different budget scenario these days, and we are not as focused on the top line as we are with stabilizing funding over time for these programs. These programs are at the stage of being long-term capital construction projects, and we really need to be able to plan and project and resource-allocate over time. That is what is going to give us stability and certainty that we can reach the actual results and the defined accomplishments that we all seek.

We need to stabilize that funding, tie our own planning to that funding, and in that way, we can have the right industry capacity in the right place at the right time to effect these cleanups economically and efficiently.

With regard to DERA devolution, Hazardous Waste Action Coalition [HWAC] is prepared to provisionally support that devolution concept on the strength of DOD's representations that we are going to get more efficiency, that we are going to move cleanup to the field more quickly, that we are going to get the services to really take ownership and feel a sense of empowerment. We want to watch that process very carefully. We would like to reserve the right to come back to you with our constructive and critical review at the end of this next year and tell you how we think it is going.

With respect to the issue of actual cleanup, we understand the goal that you all have imposed on studies and investigations and other activities, and we are going to strive very hard with the services to meet that goal. But I would also indicate that in our experience in the field, dollars spent on studies and investigations and analysis can often save significant amounts of money in long-term cleanups, and we all need to pay attention to that as we move through this program—again, an issue that we want to watch carefully.

We are very engaged in the reauthorization of Superfund, and we hope, as all of you do, that we can accomplish that this year. In the event that we cannot, we would like to focus on certain issues that we believe you all can contribute to the discussion and debate on. Among those are the single regulator issue that Mr. Hastings has already talked a good bit about and the issue of property transfer, which Mr. Dellums and others have discussed.

Finally, Ms. Goodman made reference to the task order/delivery order issue. We are making good progress on that issue and other procurement issues within the Department of Defense, and we take that as a measure of the partnership and cooperation that we are working under now. It has been very good.

With that, Mr. Chairman, I will stop and be prepared to entertain your questions at the appropriate time.

Thank you.

Mr. HUNTER. Thank you, Mr. Birkhofer.

Mr. Kahane, please go ahead.

[The prepared statement of Mr. Birkhofer follows:]

Testimony of William J. Birkhofer

Vice President

Sverdrup Corporation

for the

Hazardous Waste Action Coalition

on

Department of Defense Environmental Restoration

and

Department of Energy

Environmental Management Programs

Subcommittee on Military Procurement

Subcommittee on Military Readiness

House Committee on National Security

United States House of Representatives

March 21, 1996

Chairman Hunter, Chairman Bateman, Congressman Skelton, Congressman Sisisky and members of the Committee, my name is William Birkhofer, and I serve as a Vice President of Sverdrup Corporation, a St. Louis-based professional services and construction firm engaged in environmental cleanup and pollution prevention activities for the Defense Department, (DOD) and other government and private entities.

I also serve in the leadership of the Hazardous Waste Action Coalition (HWAC), a coalition of nearly 100 companies representing a large share of the engineering, scientific and construction capacity engaged in cleanup activities through the Department of Energy's Environmental Management (DOE EM) and the DOD's Defense Environmental Restoration Account (DOD DERA) programs and I am pleased to appear here today on behalf of HWAC. For over a decade, HWAC has served as the leading industry organization representing hazardous waste remediation firms. One of its principal missions is to provide industry expertise and perspective on policy, regulatory and legislative improvements to the DOD DERA, DOE EM and Superfund programs.

With that background, we commend you for holding this hearing, and for providing HWAC the opportunity to present an industry-wide perspective on the management and execution of the DOE EM and DOD DERA programs, funding levels for those programs, priority improvements to improve DOD and DOE environmental cleanups in the pending Superfund reauthorization and other related issues. Our appearance before you today is indicative of the significant changes in DOD and DOE contracting practices that encourage greater competition and involvement of small and mid-

sized environmental consulting firms.

Let me begin with four basic observations:

- The management and execution of both the DOE EM and DOD DERA programs has improved greatly in the past few years and will continue to improve through the actions of government and contractors in close working partnership--these programs are no longer broken and are in increasingly good health. The proof of this is that the accomplishment of actual cleanups is dramatically increasing, as a result of reforms in contracting and management practices which place real emphasis on performance, innovation and incentives leading to results. These improvements are based on properly circumspect yet highly cooperative relationships between cleanup contractors, their government customers and other stakeholders.

- At this point in time, many additional DOE and DOD sites are being readied for actual cleanup. Much of the "front end" study and analytical (PA/SI and RI/FS) work has been completed, and remedial designs and remedial actions are ready to begin or are actually underway. It is understood and accepted in our industry that all federal programs and activities, including environmental restoration, must share in the pain of necessary over all budget cuts. However, further increases in the rate of actual cleanups is highly dependent on stabilizing current funding and providing a level of certainty that dependable funding for cleanups will be available over the longer term.

- While Superfund reauthorization is the proper policy venue and legislative vehicle for broad reforms in federal facilities policy, future land use and contractor liability issues, we should at least discuss and debate incremental changes in such policies to accelerate progress in DOD and DOE cleanup activities in the event that Superfund reauthorization should be delayed beyond this year.

- In our shared interest to achieve "faster, better, cheaper, safer" cleanups, industry and its DOD and DOE partners must identify and implement institutional changes and reforms through our own initiatives or even government-wide reforms, that will lead to real and lasting improvements. We must then monitor those reforms carefully to assure that they are leading to the intended results. We must also agree on a common "language" or metrics by which cleanup progress can be analyzed and evaluated by the Congress, DOD, DOE, the contracting community, and all other stakeholders.

Cleanup Program Management and Execution

The DOD DERA and DOE EM programs are setting the pace for contract and management reforms in federal environmental restoration activities. These programs are also among the highest and best examples of federal acquisition reform and government reinvention.

At both DOD and DOE, the number of cleanups underway and completed is "rising,"

compliance is "rising," the level of competition is "rising," and amounts spent on cleanup as compared to supporting management and oversight activities is rising.

This record of improved progress results from the following common reforms in program management and execution:

- More effective risk-based prioritization of cleanup activities
- Performance-based, results-oriented statements of work
- Increased prime contractor competition and broader subcontractor participation through early, continuing outreach to all sectors of the cleanup contracting community
- Simplified, more easily understood, and more uniform contract documents
- Greater delegation of authority and program and funding devolution to the field
- Increasing willingness to treat contractors not as adversaries but as true partners in the cleanup process

DOD's relative risk system for prioritizing cleanup activities is helping to focus on highest and

best uses of available resources, and its efforts to devolve the DERA program to the services represents a good-faith attempt to reduce bureaucracy, empower managers at the project level and speed cleanup. DOE's contract reform initiative, which emphasizes increased competition, diversity, results-oriented statements of work and performance, is designed to fundamentally change the way DOE does business. Both DOD's program improvements and DOE's contract reform initiative lead to greater returns on investment for government and the taxpayer.

However, while we have made a good start that is leading to real improvement in actual cleanups underway or completed, additional institutional reforms are desirable, especially in the following areas:

- Continued improvements in labor management practices for DOE facilities
- Authority for privatization of DOE and DOD activities, where appropriate
- Further delegation of decision authority to DOD and DOE managers in the field.

Cleanup Program Funding

As the DOD DERA and DOE EM programs mature, and more cleanup activities get underway, these programs take on the character of major capital construction efforts, in which long-

term planning and programming, scheduling and resource allocation are critical to success. Ironically, we are experiencing significant near-term funding challenges at a time when long-term commitments would bring the desired levels of cleanup economy and efficiency that we in the contracting community and our DOD and DOE partners earnestly seek.

Within the cleanup contracting community, there is currently ample engineering, scientific and construction capacity to meet the requirements of the DOD DERA and DOE EM programs. Our present greatest challenge is to ascertain the nature and level of capacity needed, when and where it will be needed, and how best to deliver it. The current uncertainty and instability concerning DOD and DOE environmental cleanup funding greatly complicates our challenge.

With regard to actual funding levels, HWAC supports the stabilization of DOD DERA and DOE EM funding at a minimum, of FY96 appropriated levels, for FY97 and over the next several years. While a consistent $6.2 billion appropriation for DOE EM activities, and an additional $1.4 billion for DOD DERA cleanups is a significant commitment, we must be prepared to pay down the "principal" (actual cleanups) as well as the "interest" (site security, maintenance and operations) of our environmental restoration "mortgage." Within the DOE EM program, we must also recognize that cleanup is simply one of the integral elements of the DOE effort, and that funding for waste management, nuclear materials, and site operations are also important priorities in funding the total environmental management effort.

Additionally, we need to recognize the critical importance of low-dollar, yet high-impact

activities relating to community participation and input to the cleanup decision process through DOE Site-Specific and Citizen Advisory Boards, and through DOD's Restoration Advisory Boards and its Defense-State Memoranda of Agreement (DSMOA). These community and state-based activities assure up-front participation and shared ownership of cleanup decisions and ultimately improve the economy and efficiency of cleanups.

Agreements under the Federal Facilities Compliance Act are also important drivers of the cleanup process. As legally enforceable agreements, they must either be funded or renegotiated. While, renegotiation may in some cases be possible, it is unlikely to be politically acceptable to most cases, would result in extended schedules and/or higher costs, and will unfavorably impact stability of funding. We are aware, however, of significant progress on this front at Rocky Flats.

Notwithstanding the cleanup progress now being made, initiatives to develop better technologies must also be adequately funded. In this regard, HWAC strongly supports DOE's Environmental Science Initiative, which was recommended by the Galvin Commission and directed by Congress in FY 1996, and other DOE and DOD technology development activities.

Finally, we are encouraged by Congressional and Administrative interest in privatization, as a means infusing additional capital into current governmental activities and operations that are suitable to be undertaken commercially. In this regard, we believe that DOE is taking an appropriate step forward in initiating privatization of the Henford Tank Waste Remediation System (TWRS), and hope that the Committee will encourage DOE to proceed further on this important initiative.

Further, we strongly urge that once appropriated, those funds not be subject to rescission or reprogramming. In this regard, it should be clearly understood that continued offsetting of DOE EM "uncosted balances" against current-year appropriations, and reprogramming of DOD DERA funds to meet the costs of other DOD activities, will have disruptive impacts on the ability of DOD and DOE and their contractor partners to economically and efficiently plan, program, and allocate resources to cleanup activities in a given time period.

As noted earlier, HWAC believes that the larger, longer-term DOD and DOE cleanup actions should be considered as "projects," in which a series of well-defined activities leads to a complete cleanup through a series of milestones with a concrete endpoint. This approach suggests the use of capital budgeting and multiyear funding, which we strongly urge you to consider.

We in the contracting community share in your interest and that of our DOD and DOE partners in committing the maximum amount of resources to actual cleanups. With this in mind, HWAC supports organizational reforms and other changes such as those already cited that will increase and speed the flow of dollars to cleanups. However, when we adopt such changes, they must be carefully implemented and monitored to assure that the intended results are being achieved.

For example, the FY96 DOD authorization imposed a 20% "cap" on study, administrative and related costs associated with DOD DERA cleanups. HWAC is currently working with its DOD partners in implementing this provision to assure that reductions in "front end" planning and study activities do not significantly reduce relatively low-cost opportunities to identify innovative

approaches and methods that will dramatically reduce overall capital costs of cleanups. It is important to note that the cleanup process is not linear--through our work in the field employing the "observational method" approach to cleanup, we frequently identify "faster, better, cheaper, safer" approaches and solutions as we proceed which favorably impact cleanup efficiency and economy.

With regard to DOD's devolution of DERA activities to the individual services, HWAC provisionally supports this approach, based on DOD's representations that devolution will reduce overhead at the DOD level, expedite funding to cleanups, assure greater "program ownership" within the services and that DOD will continue to provide oversight and performance monitoring. We will watch this process carefully and provide regular feedback to DOD and the Committee concerning the effect of devolution on the economy and efficiency of DERA cleanups.

Institutional Reforms and Superfund Reauthorization

HWAC and its DOD and DOE partners have a considerable stake in timely reauthorization of Superfund. In addition to focusing on response action contractor liability issues, HWAC has also identified a number of important areas for policy reform which would speed the cleanup process and return federal lands to productive use at the earliest possible time. Notwithstanding the collective effort to reauthorize Superfund this year, HWAC encourages the Committee to review and consider (independently or through input to other relevant Committees dealing with Superfund reauthorization) the following concerns:

- Superfund reauthorization should establish a single regulator for each DOD and DOE facility to eliminate overlapping and often contradictory requirements imposed by multiple regulators.

- Superfund reauthorization should clarify the role of the States in selecting cleanup standards at DOD and DOE facilities.

- Superfund reauthorization should promote economic redevelopment of DOD and DOE facilities by allowing transfers of property before or during remedial actions.

- Superfund reauthorization should allow cleanup contractors involved with DOD and DOE facilities access reasonable risk-sharing methods and liability.

- Superfund reauthorization should provide that the protections of response action contractors provide under SARA 119 are available to the DOD and DOE cleanup contractors required to obtain co-operator permits.

Other Issues

In addition to actions already underway within DOD and DOE to promote "faster, better, cheaper, safer" cleanups, the impact of other reforms brought about by the passage of the Federal Acquisition Streamlining Act of 1994 (FASA) and the Federal Acquisition Reform Act of 1995

(FARA) must be carefully monitored.

For example, the FASA-imposed mandate to procure task and delivery order contracts on a multiple-award basis, and then to compete individual tasks among the multiple contractors could, if applied rigorously to DOD and DOE environmental cleanup procurements, be disruptive to current contracting strategies and to the evolution of the "project" approach referred to earlier.

Through discussions with DOD, DOE and other federal agencies, HWAC has advocated a flexible approach to the application of multiple-award task and delivery order contracting to environmental cleanup activities. We are presently encouraged that we will be able to resolve this issue through appropriate administrative guidance and language in the Federal Acquisition Regulations (FAR). In the event this administrative approach is not effective, we will advise the Committee and pursue a legislative solution.

The recently-enacted FARA provides for the first time a uniform federal approach to the procurement of design-build services which may afford significant benefits in reducing cleanup construction costs and schedules in certain instances. Again, HWAC is working closely with its DOD and DOE partners on implementing regulations.

With regard to developing and using a more common language (to include quantitative data) to measure and report on cleanup progress, HWAC, at the suggestion of DOD, is an invited member of a "blue ribbon" panel advising Clean Sites, Inc. in its current study of DOD's environmental

cleanup activities. We have provided input, look forward to provide advice on the second phase of the study dealing with cleanup management approaches and methods. Hopefully, this study will lead to improved communication and management performance resulting in enhanced accountability for cleanup results.

Thank you for this opportunity to share with you the views of the Hazardous Waste Action Coalition. I would be please to respond to your questions.

STATEMENT OF STEPHEN KAHANE, PRESIDENT FEDERAL PROGRAMS, ICF KAISER-HILL

Mr. KAHANE. Thank you. Good afternoon, Mr. Chairman and members of the subcommittees. My name is Steve Kahane, and I am testifying as President of ICF Kaiser International's Federal Programs Group.

ICF Kaiser is an international engineering, construction and consulting firm with extensive environmental expertise. We are working with each of the major services providing environmental restoration support and are a major support contractor to the Department of Energy. In particular through our Kaiser-Hill subsidiary, jointly owned with CH2M Hill, we are serving as the integrating management contractor for the Rocky Flats environmental technology site.

My testimony today will focus on Rocky Flats and the opportunity we have to substantially reduce the risk to the Denver metro area, reduce the mortgage, and in turn make available scarce dollars for this country's core defense mission.

Kaiser-Hill took over at Rocky Flats last July 1 and has achieved much since then even with a reduced budget. Our accomplishments are included in my written testimony. What I will discuss with you here is where Kaiser-Hill would like to go next.

Rocky Flats is no longer an operating site. We have the unique opportunity to transform it to a closure or deconstruction project. Forming projects out of what can be short-term closure actions like rocky Flats can yield large payoffs for the at-risk stakeholders and for the taxpayers.

Importantly, the Kaiser-Hill Closure Project for Rocky Flats which I will describe would in 9 years release all but $50 million of the current annual budget for traditional defense needs—a 14-fold decrease from current levels.

This project proposal is facilitated by DOE's performance-based contract reform initiative, which we strongly support. Eighty-five percent of Kaiser-Hill's fee is based on the achievement of defined, meaningful, measurable tasks and cost-saving actions—that is, outcome, not effort.

What would Kaiser-Hill's Closure Project mean for Rocky Flats? In this first photograph, you see the site today. It contains 14 tons of plutonium, 50,000 containers of waste, and 7 major contaminated buildings. The site is immediately upwind of 2.2 million Denver area residents and upstream of the north suburban water supply. With our best-in-class subcontractors, we can convert this site into the second photograph in 9 years, for less than $7 billion. This compares with the current estimate of over $20 million that would take the better part of a century to complete.

The long-term operating liability would be less than $50 million per year versus the current nearly $700 million annual budget. Another way to put this in perspective is that while $7 billion is indeed a very large project, it is only $1 billion more than the site will have spent in the last 7 years since production stopped, while achieving relatively little risk or mortgage reduction or environmental cleanup.

The funding scenario that achieves these results is shown by the top funding line on the graph exhibit. Unfortunately, we fear that

unless elected and executive policymakers adopt a different strategy, the bottom funding line, with no significant reduction in serious risk, may be inevitable due to budget pressures.

The bottom funding line, representing about $400 million per year, is less than the current site baseline, that is, the mortgage cost, of over $450 million per year including DOE's field office budget. We should and will reduce this baseline cost and have already cut more than $50 million per year from it. However, we do not think we can beat inflation's effect to achieve meaningful progress under the bottom budget scenario during the same 9-year period.

The bottom scenario generates the extreme case of only buying continuing maintenance and very little reliability reduction for $4 billion over 9 years—$4 billion that we will spend regardless. This compares to the opportunity to complete the interim closure of the site over the same period of time for $3 billion more and harvest the long-term savings and associated opportunity of an operating budget of less than $50 million per year.

It is important to note that defining the cleanup project and managing it as a project will be a benefit under any funding scenario.

A summary of the other recommendations detailed in my written statement include: Make timely decision on plutonium and other radioactive waste disposition; enable use of private capital for part or all of a closure project; review labor-management practices to verify that appropriate tradeoffs are made between employment stability and cost-effective and timely risk reduction; encourage the development of appropriate nuclear regulatory protocols for the closure and decommissioning of DOE facilities; and streamline the regulatory process, in particular by adopting the Superfund reforms suggested in my written statement.

In closing, I want to emphasize that Kaiser-Hill is ready to go on this project now. We have a best-in-class qualified team onboard that was selected to do this work. We have in place an efficient and effective contract vehicle with a results-oriented incentive fee structure. We do not need new technology to accomplish the work, and our estimate includes the construction and operation of state-of-the-art, safe and secure plutonium and waste storage facilities to mitigate even decades-long delays in decisions on permanent repositories.

Thank you for your consideration, and I would be happy to respond to any questions at the appropriate time.

[The prepared statement of Mr. Kahane follows:]

Testimony of
Stephen Kahane,
President Federal Programs,
ICF Kaiser,
before the House Committee
on National Security,
Subcommittees on
Military Procurement
and
Military Readiness

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Good afternoon Chairman Hunter, Chairman Bateman, and Members of the Subcommittees. My name is Stephen Kahane; I represent ICF Kaiser, where I serve as President of the Federal Programs Group. I am pleased to have the opportunity to testify before you today and to share ICF Kaiser's experience as a defense environmental contractor, in particular our subsidiary Kaiser-Hill's experience at the Department of Energy's (DOE) Rocky Flats Environmental Technology Site, and to offer some suggestions for improving these efforts and saving significant taxpayer dollars.

I want to deliver three basic messages today:

- First, treating the closing sites as single, unified projects with dedicated funding and performance-driven contracts is the best way to enable the agencies' contractors to achieve an industry standard and give taxpayers the best value for their dollars.

- Second, a careful analysis of the safety, health, and environmental risks at closing defense sites, as well as of the potential costs of cleaning up and closing down these sites, reveals that TIME is the single most critical factor in keeping both the

[1] Members can find Mr. Kahane's biography in Attachment H.

costs and risks at the lowest possible level, particularly at sites where there are high baseline operating costs. In other words, the longer it takes, the more it will cost and the greater the life-cycle risk will be.

- Third, there are both legislative and institutional barriers to achieving the lowest-cost, highest-quality, most-expeditious cleanup of this site. Many of these barriers are ones that Congress can remove.

I recognize that the large sums that this Committee authorizes for environmental cleanup is money that is unavailable for the defense mission. However, a life-cycle cost analysis shows that, with a modest incremental investment now in a project like the one Kaiser-Hill is proposing for Rocky Flats, Congress will more quickly be able to deal with the legacy of our nation's having won the Cold War and put future funds back into the traditional defense mission.

To set the stage, I will describe briefly ICF Kaiser's Department of Defense (DOD) and DOE experience. Then, I will focus on Kaiser-Hill's situation at Rocky Flats—what they have accomplished to date under their unique contract and where they would like to go with DOE and the Congress during the remainder of their five-year term.

ICF Kaiser's Federal Facility Program

ICF Kaiser has a long history of working in partnership with federal defense agencies. The company has performed a broad range of services for DOD; in the environmental arena, for example, ICF Kaiser won the Army's Baltimore Total Environmental Restoration Contract (TERC), several general architectural/engineering (A/E) contracts for underground storage tank site assessments, environmental audits and environmental engineering with the Navy, and an

Installation Restoration Program support contract for the Air Force Center for Environmental Excellence. Members can find more information on ICF Kaiser's DOD contracting in Attachment A. For DOE, ICF holds the A/E contract at Hanford and a contract for environmental remediation services at the Los Alamos National Laboratory, in addition to the Kaiser-Hill contract described below.

The DOE/Kaiser-Hill Contract

Kaiser-Hill is a joint venture subsidiary of ICF Kaiser and CH2M HILL. For a description for CH2M HILL's federal defense environmental contracting credentials, please refer to Attachment B.

Kaiser-Hill's contract with DOE is the first of its kind. The company acts not as a traditional management and operations contractor doing everything required by DOE at the site itself, but rather as an integrating contractor, managing the work of a handful of major subcontractors and many minor ones selected to do specific tasks because of their expertise. Moreover, the contract is based on performance, so Kaiser-Hill receives its fee only when it achieves certain pre-approved measures, instead of the previous DOE model cost-plus-award-fee system. In Attachment E to this testimony, you will find more information on the Kaiser-Hill team and its Integrating Management Contract with DOE for Rocky Flats.

Rocky Flats Overview

Next to DOE's Hanford Reservation, Rocky Flats is DOE's biggest, most complex nuclear weapons complex site slated for closure. The roughly 6,500-acre Rocky Flats site sits only 15 miles from the center of Denver, Colorado. The growing suburban community is literally knocking at Rocky Flats' doors. In 1994, 2.2 million people lived within 50 miles of the site's border; one new development alone has brought

1,000 homes within the last eight years across the road from Rocky Flats' buffer zone, down-stream along the Rock Creek drainage that traverses the Site.

Rocky Flats' location presents unique security challenges and risks to the urban population. The facility itself poses difficult technical problems because of the 14.2 tons of plutonium on site, including DOE's largest inventory of unencapsulated plutonium. DOE and the Defense Nuclear Facilities Safety Board concluded in 1994 that four of the ten most dangerous buildings in the weapons complex were at Rocky Flats, including the two most dangerous. Moreover, Rocky Flats has a lingering negative image in the surrounding community, in part as a result of the 1989 FBI raid at the site that led to DOE's contractor pleading guilty to environmental crimes. Rocky Flats was listed on the Superfund National Priorities List in 1989.

As a federal facility, Rocky Flats faces the heightened complexity in the regulatory structure with which it contends both because of the overlapping jurisdiction between EPA and Colorado's environmental agencies under the Superfund (CERCLA) and hazardous waste (RCRA) statutes and because of the additional overlap resulting from DOE's and the Defense Nuclear Facility Safety Board's authorities for nuclear safety under the Atomic Energy Act. When Kaiser-Hill arrived at Rocky Flats, DOE had been negotiating to revise its cleanup agreement with EPA and Colorado for 18 months; the draft agreement was released for public comment last week.

The site's fiscal year (FY) 1995 budget was $777 million (M), including all carryover funding. The site's FY 1996 budget (again including carryover money) is now expected to be $699M (a reduction even from last fall's projection). Of these amounts, approximately $450M in FY 1995 was, and less than $400M in FY 1996 will be, applied directly to the "mortgage," i.e., the activities associated purely with keeping the lights on and the safety envelope intact. Although Kaiser-Hill has and

is working hard to reduce the annual mortgage costs—as evidenced by the fact that the 1996 mortgage will be more than $50M less than in the previous year—not until Kaiser-Hill is able to exit the major plutonium buildings will the amount come down substantially. DOE spent $119M in FY 1995 and has budgeted $146M in FY 1996 to perform its oversight responsibilities and to make various required payments to surrounding jurisdictions and civic entities. Thus, only $208M in FY 1995 was, and $163M in FY 1996 is, available for use to do the mission work of cleaning up Rocky Flats and putting the site's plutonium and other special nuclear materials in safer storage.

We understand that the FY 1997 budget from the Administration slates Rocky Flats for a $37M, or 6.5% decrease, more than twice the 3% decrease for DOE's Defense Environmental Management (EM) program as a whole. While I am certainly disappointed that Rocky Flats is not being given the money to start a closure project this year, I am pleased that DOE did transfer all of Rocky Flats' funding into the Environmental Restoration account within the EM program; the increased flexibility this approach entails will enhance the Site's ability to manage its limited funds most effectively. I am also confident that Kaiser-Hill and DOE's Rocky Flats Field Office are aggressively pursuing additional cost savings which would allow the site to get more real work done next year.

The First Ten Months

During its brief 60-day transition from successful bidder to contractor-in-charge, Kaiser-Hill operated under a fixed-price contract. The company's most significant achievement during this period was to complete a substantial workforce restructuring involving voluntary and involuntary layoffs of over 1,400 of 6,000 contractor employees. With DOE's support, Kaiser-Hill designed this action to

ensure a leaner workforce better suited to the site's "Clean it up and Make it Safe" mission.

During our first eight months on the job, Kaiser-Hill has generally accelerated the pace and increased the level of cleanup and risk reduction at Rocky Flats, even with a significantly smaller workforce and without any decrease in safety. This outcome has been enabled by the performance-based contracting approach resulting from DOE's Contract Reform efforts. Critical to this progress has been DOE's support of the performance-based approach in Kaiser-Hill's contract, support that I hope will continue and that Congress will encourage. DOE has also acted in partnership with Kaiser-Hill to accelerate risk reduction at the site.

- Kaiser-Hill broke a 10-month impasse that had halted draining of plutonium liquids out of tanks; the Kaiser-Hill team has restarted this task, draining seven tanks, and have set an ambitious schedule for its completion, which the Site expects to achieve.

- The Kaiser-Hill team also thermally stabilized unstable plutonium oxide and have shipped certain classified plutonium and machining parts off the site.

- Kaiser-Hill is completing preparatory efforts to exit two of the site's seven major plutonium/uranium buildings this fiscal year. As part of this effort, six tons of highly enriched uranyl nitrate will be shipped off the site by October.

- Kaiser-Hill's labor-relations specialists, in conjunction with union leaders, have developed a proposed allocation for site-decommissioning work among the various trade unions that should allow Rocky Flats to avoid scope-of-work disputes during the closure process.

- Kaiser-Hill's nuclear team also completed the venting of stored drums containing high-plutonium-content residues and hydrogen gas. The venting was safely accomplished at plant-record production rates.

- Kaiser-Hill's environmental team achieved real cleanup by putting people out in the field who moved dirt to remove one of the top-ten most-hazardous individual cleanup sites at Rocky Flats. Named Ryan's Pit, this shallow dirt grave had contained hazardous and plutonium-contaminated debris and soils.

- The Kaiser-Hill team shipped record amounts of low-level mixed waste off the site—about 60 truck loads since July.

- Kaiser-Hill participated in crafting a long-term "Vision" for Rocky Flats. DOE, EPA, and the State of Colorado released the Vision for public comment March 14. The Vision will guide the near-term determinations about choosing a path forward for cleanup and ultimate disposition of Rocky Flats. The Vision addresses land uses, waste management, cleanup, and other important issues. Public consensus regarding the path forward and endpoint should lead to Rocky Flats being able to direct funds towards meeting its cleanup and safety mission goals in a more efficient manner.

- To implement the Vision, Kaiser-Hill proposed a bold new approach for completing the bulk of the cleanup and risk-reduction activities as a project. This implementation strategy, if followed, could save billions of taxpayer dollars while expeditiously reducing the current hazards associated with the plutonium stored on the site. Attachment B contains a synopsis of this proposal and I discuss it further in this testimony.

- Kaiser-Hill participated in the negotiations of the new Rocky Flats cleanup agreement that will ultimately replace the site's existing interagency agreement. The new agreement will reduce substantially the number of enforceable regulatory milestones to focus on real work instead of paperwork and to recognize that out-year planning is not precise because of the vagaries of the federal budgeting process. The agreement is premised on the commitments of DOE, EPA, and the State of Colorado to work cooperatively and openly with each other; to streamline the work-approval and dispute-resolution processes; and to use, to the maximum extent currently allowed under law, a single process with approval by a single regulator to expedite the paperwork and produce a bias for action. In addition, the new agreement wraps more of the work on the Site under its umbrella, thereby simplifying the regulatory framework that DOE and Kaiser-Hill face. Also, the agreement sets preliminary cleanup standards that will guide work at the Site for the next decade. Finally, the agreement includes as an attachment a groundbreaking memorandum of understanding among the three signing agencies and the Defense Nuclear Facilities Safety Board to address the Board's role during decommissioning. The draft agreement was released for public comment March 14.

Where Kaiser-Hill Would Like to Go From Here

The complete change in mission at Rocky Flats should have led to a radical change in the work structure for the site. Unfortunately, the latter transformation has yet to occur. The site is still in an "operations mode," when what it needs is to be structured like a project.

By operations mode, I mean that work is scoped, budgeted, and managed yearly, but without focus on an endpoint. Planning occurs when DOE identifies a new need, but not in the context of trying to complete the overall mission, because, in

fact, one planning assumption is of an ongoing steady state. Thus, DOE and Kaiser-Hill are institutionally encouraged to view work only in the context of the year's activities. The analogy is to a military training facility or munitions factory, in which there is no mindset that the work will ever end.

In contrast, to treat the site as a project requires that Congress and DOE view Rocky Flats in its totality, as a unified set of defined activities with a beginning, a middle, and a finite achievable endpoint—with an agreed-on total cost and completion date. Work would be viewed always in the context of a series of activities to accomplish the endpoint. The analogy here is to construction of a new military base, where building craftspeople come and go as needed. If one were to build a new base using the operations model, all building craftspeople would remain on the job site for the duration of base construction, a much more expensive proposition.

From a funding standpoint, federal operations receive an annual budget, while government projects traditionally have life-cycle budgets, even when they obtain annual appropriations. Similarly, while an operating contractor receives a fee for activities performed within a given fiscal year, a project management contractor is rewarded on multiyear accomplishments in the context of the overall project.

At Rocky Flats, Kaiser-Hill has been working to develop a project that would be consistent with the draft Vision for the site. At the end of this closure project, the bulk of environmental remediation would be completed, and the only DOE buildings left on the site that would be related to the defense mission would be two safe storage facilities—one for plutonium, pending a national decision on its disposition, and the other for transuranic waste, pending its shipment to DOE's Waste Isolation Pilot Plant (WIPP) or alternative disposition. Attachment C to this testimony depicts three pictures of the site—one today, a second showing the site after completion of the project, and a third representing a final condition at the end

of DOE's mission. Although the Vision is now out for public comment, the project proposal (Attachment F) that Kaiser-Hill has developed would accommodate all expected permutations of the Vision. Once the Vision is final, Kaiser-Hill would work with DOE as DOE works with its stakeholders to ensure a project consistent with the Vision. As this Committee has undoubtedly learned through its BRAC oversight, regulators and communities are more likely to work together towards a common cleanup goal that is tied to established end-use objectives. While the Vision will not be as specific as a BRAC reuse plan, it should unite all interested parties towards achieving a common goal.

There would be four main components of a Rocky Flats closure project:

1. **Urgent Risk Reduction / Special Nuclear Materials Management**

Stabilize, treat, consolidate, and safely store plutonium and highly enriched uranyl nitrates (HEUN) in shippable containers for eventual off-site disposition. Although all HEUN would be shipped off the site during the project, plutonium could remain on the site beyond the 9- to 15-year project term.

2. **Waste Management**

Build retrievable, monitored storage facilities for containerized transuranic wastes and for non-remediation, low-level radioactive wastes, as well as a Corrective Action Management Unit (under the Resource Conservation and Recovery Act) for remediation wastes—other than transuranic materials—and building debris. Ensure that the transuranic waste is ready for shipment to WIPP by 1998 and ship as much as DOE will allow if WIPP does open. Ship other hazardous and solid wastes off the site, as generated, to commercial facilities.

3. **Facility Decommissioning**

All contaminated buildings would be deactivated, decontaminated, decommissioned and either demolished or, if feasible and appropriate, designated for non-mission future uses. Uncontaminated buildings would be deactivated and either demolished or designated for future uses.

4. **Environmental Restoration**

Clean up or close all existing landfills and individual contaminated sites, while protecting surface water, minimizing the migration of groundwater contamination, addressing soil contamination as needed to eliminate additional water contamination, and providing a robust environmental monitoring system to demonstrate that the overall remediation conforms with the risk-reduction goals and cleanup levels established for the site.

The Advantages of Structuring Rocky Flats Like a Project

Perhaps the greatest advantage of treating the Rocky Flats cleanup as a unitary project would be that, as discussed above, DOE, Congress, and the public could look at the path forward and see an endpoint. Moreover, because one of the current motivational problems that exists at Rocky Flats stems from having no recognized national imperative to close the site quickly, creating a project to do just that would have psychological benefits for all involved.

Several financial benefits also arise by using the project structure. I believe that using a project funding structure will maximize the leverage for each dollar Congress authorizes and appropriates. In evaluating the efficacy of making Rocky Flats into a project, DOE and Congress should measure the project proposal against

alternatives using the present value of the total program costs, appropriately discounted. I am confident that the project structure will be the most advantageous of the options. Treating the closure as a project with funding through a single line-item account also will enable Rocky Flats to target funds more flexibly to the highest priority requirements at the site, thereby resulting in a more efficient use of limited dollars. And, as described below, moving to a project structure may lend itself to using outside sources of money.

While not a perfect analogy to the BRAC process, this committee could treat Rocky Flats like a closing base.[2] Just as it is the goal of BRAC, the goal of a Rocky Flats closure project would be to remove the government's liability at the site and staunch its flow of government dollars as expeditiously as possible, so that the money now spent on the mortgage and environmental liability avoidance can be diverted back to defense missions, and so that the government can make the property available for other uses. Right now, the government is effectively paying only for the interest and none of the principal on the Rocky Flats mortgage.

If Congress allows the Rocky Flats closure to proceed as a project within a single line appropriation, it would enhance Kaiser-Hill's ability to provide adequate cost accountability to DOE and Congressional overseers. Kaiser-Hill hired Arthur Andersen and Dunn & Bradstreet to conduct an audit shortly after assuming its job at Rocky Flats. These firms confirmed that the financial tracking systems the company inherited are antiquated and not capable of providing the appropriate level of accountability. Kaiser-Hill will be giving DOE a plan to reform the financial systems, along with an implementation strategy, this month. The plan will be

[2] The analogy is not exact for the following reason. Whereas each closing base has a reuse plan, most of Rocky Flats will not be available for uses other than managed open space while plutonium remains on site. Thereafter, with the exception of remaining areas of disposed or retrievable/monitored wastes, the industrial core of the site would be available for other uses but most of the site's buffer zone would likely remain as managed open space, based on the preferences articulated in the 1995 Future Site Use Working Group Report.

implemented in a step-wise fashion over the next 12 to 15 months. Kaiser-Hill recognizes that the financial systems Rocky Flats currently uses are weak; it will have something better in place during 1997.

In the meantime, however, Rocky Flats has one of the lowest percentages of uncosted balances for a major DOE facility and is staying within the parameters of the DOE order regarding such balances. For this reason, any significant reductions in carry-over funding may adversely affect Rocky Flats' ability to meet its regulatory commitments.

Keys to Achieving Closure Faster, Better, Cheaper, and Safer

There are several areas in which I believe we need Congress' assistance to stay on track toward reaching the goals Congress and DOE expect to achieve at Rocky Flats.

1. **Budgeting and Creating a Project**

When Kaiser-Hill was awarded the contract in April 1995, there was a strong call for action and vision at the site. The official closure cost in the 1995 DOE Baseline Environmental Management Report (BEMR) was $22.5 billion over 70 years. The unofficial cost recognized by the site's submittal to the BEMR was $35 billion by the year 2080. With these long time frames, the site was caught between the need to maintain and upgrade the buildings to last most of another century versus accomplishing risk reduction. DOE and the Defense Nuclear Facilities Safety Board (DNFSB) noted the dangers and diseconomies of this approach, and the stakeholders were impatient as little cleanup had been accomplished in the five years since production ceased.

The decision makers have several choices when considering the budget for Rocky Flats. At one end of the spectrum is funding the project and at the other end is continuing simply to pay long-term mortgage costs for the long term and work only slowly on site closure. As shown in the attached cost-curve chart (Attachment D), which depicts four budget profiles for achieving the same endpoint, the longer it takes to fund cleanup, the more it will cost and the longer the site will be at higher risk. For $6.7 billion (which includes an incremental increase of $3 billion over planned spending in the next seven years), DOE and Kaiser-Hill could close Rocky Flats in nine years. Thereafter, the mortgage costs at the site would be $50 million annually rather than the $400 million they are today. A nine-year project would require as much as $400M more in one fiscal year than would be provided under the funding scenario Mr. Grumbly laid out in his Congressional testimony last year, but the overall project cost would be $13 billion less than a project with a flat funding of $400M per year; however, at that spending rate, Rocky Flats could complete only 20% of the cleanup and closure work during the same nine-year period. A 15-year project, by contrast, would cost $8.8 billion total—more than $12 billion in savings from the $400M annual flat-funding scenario, assuming eight years at a $700M site budget. The incremental expenditures over mortgage costs are shown for each cost curve in Attachment G. If one thinks of this cleanup as a capital project, the notion that it will cost more at the beginning (i.e., require front-loading) is not surprising. If there is a commitment to budget for the project, Rocky Flats will be cleaned up and off the books, or nearly off the books, sooner, leaving more money for other national priorities.

The cost-curve chart illustrates how delaying the infusion of funds to a Rocky Flats cleanup project could leave the site with insufficient funds to effect closure, thereby requiring constant mortgage payments. A decrease in funding Rocky Flats during the next few years would mean that Kaiser-Hill may not be able to continue to make meaningful progress towards closing the site. Instead, the reduced funding may permit only maintaining a mothballed site that would represent a continuing

liability for the U.S. government, even though Rocky Flats no longer has an active production mission.

2. Making the Collateral Decisions

One reason that Rocky Flats faces difficult choices in determining how to clean up the site is that no places are known for disposing of many of the materials and waste types stored at the Site and expected to be generated during the cleanup phase. For example, Rocky Flats stores 5,000 drums of transuranic waste. Although DOE expects to open the Waste Isolation Pilot Plant in New Mexico by 1998, it is widely speculated that this date will slip. In the meantime, Rocky Flats cannot plan with any certainty regarding the future of the transuranic wastes on the site. Similarly, DOE has yet to make a decision on the national level regarding the future of its surplus plutonium inventory. Because of the 14.2 tons of plutonium at Rocky Flats, the resolution of this issue is another critical element without which planning becomes difficult, either in terms of the timing for removing plutonium from the site or in terms of the appropriate strategy for storing the plutonium in the interim.

3. Restructuring the Workforce and Labor Management

This Committee passed workforce restructuring legislation, section 3161 of the 1992 National Defense Authorization Act, to address the transition of the weapons complex from production to cleanup. DOE guidance has expanded these requirements. Rocky Flats has effected two workforce restructurings since DOE ended its production mission in 1992, the most recent of which occurred by Kaiser-Hill's direction immediately before the company assumed its role as integrating management contractor. Although the new mission for the facility has now been set for several years and is unlikely to change in the future, the statutory and agency requirements continue to apply for workforce restructuring. These requirements, including those that emphasize retraining of current workers for other work on the

site (as opposed to in the outside community) rather than hiring employees with expertise in the specific tasks scheduled for accomplishment, are proving costly and time-consuming. The site is struggling to adapt its large, stable, highly skilled and specialized workforce to the wide swings in employment needs that have already begun to occur and will continue throughout the massive deconstruction that must take place at Rocky Flats.

While I recognize the legitimate social and economic concerns that arise when Congress decides to close a military facility, it must also be recognized that the labor management practices for DOE facilities provides one of the greatest cost differentials from a commercial approach to cleanup. Because every dollar spent at Rocky Flats is a safety dollar, excess dollars spent also compromise worker and community safety. Without additional flexibility to manage the workforce in a way that does not require employees whose skills are no longer compatible with the site's mission on the payroll, Kaiser-Hill will have increasing difficulty completing the desired scope of work given the limited funds available.

4. **Reforming of DOE Orders**

DOE has begun a massive effort to review the orders it has issued over the past several decades and to eliminate those that are unnecessary or irrelevant to current conditions. DOE intends, at the end of this process to have only those requirements in place that describe the "necessary & sufficient" safety envelope for the work that is being done today at its defense facilities. Completing this massive task is time-consuming and costly, but without a tailored set of orders, sites like Rocky Flats are spending scarce dollars to comply with outdated requirements that do not reflect current operations and needs. The existing orders, written for operating facilities, need to be transformed into appropriate guidance for a facility whose sole mission is closure and decommissioning. Congress should encourage the DOE to finish this effort by providing sufficient targeted funding.

5. **Privatizing**

Last year, several legislative proposals were introduced in Congress that would each have encouraged privatizing of large construction projects with associated limited time operations, such as a vitrification plant at Hanford. Although none of these bills has yet become law, at Rocky Flats there are several scenarios where privatizing could prove more efficient than current funding approaches. One would be to allow the privatization of a contract to build and run the plutonium storage vault on the site. While DOE has yet to decide if it will build a new vault to store the plutonium instead of rehabilitating an existing building at Rocky Flats, if DOE does choose the vault, privatization could substantially reduce the government's overall costs of such a project. On a larger scale, Congress could adopt legislation to allow an entire Rocky Flats closure project to be privatized. In either case, the federal government would have to guarantee funding for the project, without, however, making an immediate authorization and appropriation. On the basis of a guarantee, and accepting the risks of delivering a high-quality product, Kaiser-Hill or a separate corporation could go to the financial marketplace to raise the incremental additional costs for the project. The revenues derived from the long-term contract would be pledged for repaying the financing with interest.

6. **Reforming CERCLA**

Although the new draft Rocky Flats Cleanup Agreement released last week will be a substantial improvement over the previous interagency cleanup agreement signed in 1991, the complexity of the regulatory structure even under the new proposed agreement suggests that additional legal reform is necessary. One of the most contentious issues during the cleanup negotiation involved the overlapping jurisdiction of the EPA under Superfund and the state under its hazardous waste law.

As a result of Kaiser-Hill's and ICF Kaiser's experience in performing remediation at federal and private sites, I would propose the following Superfund reforms, targeted specifically for federal facilities:

- Allow for a single regulator at federal facilities, for example by clarifying that EPA may delegate its CERCLA authority to an appropriate state agency so that DOE would only have to work with the state as its environmental regulator.

- Require that the regulatory agencies allow a federal facility to use a single process, i.e., by choosing to use either CERCLA or a state's hazardous waste law, but not both, to obtain approval of work during a closure project like that which is proposed for Rocky Flats.

- Protect contractors at DOE closure projects as response action contractors (whose liability is limited in comparison with potentially responsible parties) even if they are also permittees along with DOE for the limited ongoing active air and water treatment or hazardous materials operations that must continue during the life of the closure project.

- Create a provision that would not only allow, but encourage, the regulatory agencies to combine their oversight of all environmental activities into a single agreement for DOE closure projects.

- Focus on risk reduction through source (i.e., contaminant) removal, and allow for incremental cleanups so that although DOE does not have the technology to clean up to background levels of contaminants cost-effectively, or within its federal budget appropriation, DOE is not prevented from doing any cleanup at

its site and reducing risk to the maximum extent possible using the funds and technologies available.

- Direct EPA to list federal facilities on the National Priorities List (NPL) using the same methodology as the agency uses when listing private sites. In other words, do not allow EPA to list federal facilities "fence-post to fence-post." Rather, only the truly contaminated areas, as measured by EPA's Hazard Ranking System, should be part of the NPL site. This is, after all, how EPA determines whether to list private sites. If this reform were adopted, federal sites could clean up their lesser contaminated areas more easily. In addition, when it came time to release clean parcels for non-governmental uses, the federal agency would not have to go through the cumbersome process now applicable to all property within a federal facility listed on the NPL through CERCLA Sec. 120(h).

- Make the liability reforms in the current bills available to federal contractors as well as private sector companies. Today, several of the reforms are available to transporters and arrangers, but not to federal facility contractors directed to send wastes to an off-site facility, even though such contractors are also not responsible for the poor management of waste disposal sites they do not operate. (See, e.g., HR 2500, Sec. 201(a).)

Clarify the States' role in selecting cleanup standards at federal sites to ensure that a federal facility may take advantage of generic remedies and statutory methodology for establishing cleanup standards in the same manner as private facilities. Again, this will require extending the federal government's sovereign immunity to its contractors so that a state may not enforce an overly strict standard against the contractor, and thereby bind the site, where the state could not enforce that standard directly against the federal agency. (See, HR 2500, Sec. 605(2)(F).)

7. **Enhancing BRAC funding flexibility**

The recent restriction on use of Defense Environmental Restoration Account (DERA) funds for BRAC 1995 bases and the funding ceiling for previous BRAC bases may lead to some bases not being able to meet BRAC-imposed deadlines for cleanup and reuse. Since the services are in the best position to judge the relative amounts of cleanup funding needed to fulfill their BRAC and DERA commitments, this committee should reconsider allowing each service the flexibility to use environmental dollars to achieve the highest priority needs. Similarly, this Committee should also consider reprogramming FY 1996 military construction non-cleanup BRAC funds to BRAC cleanup accounts for bases on the 1991 and 1993 closure lists to expedite their cleanup so that reuse may occur as soon as possible, thereby reducing the hardship caused the host communities.

In summary, our recommendations include:

- Make Rocky Flats a closure project
- Provide flexible, dedicated funding and view the Rocky Flats closure project on a life-cycle basis
- Make timely decisions on the national issues, such as plutonium and transuranic waste disposition
- Revisit the labor management requirements as they apply to closure projects
- Quickly complete the reconsideration of which DOE orders are necessary and sufficient for performing Rocky Flats' current mission

- Enable using private-sector capital for part or all of the project as appropriate

- Reform CERCLA to streamline the regulatory process and emphasize risk reduction

- Provide more flexibility in BRAC funding to allow the services to meet their highest priority needs

While any of these solutions alone would help Kaiser-Hill achieve what it was hired to do more quickly and efficiently, without compromising safety, this package of reforms would, I believe, truly reinvent the system in a way that will enable ICF Kaiser and Kaiser-Hill to succeed. And if we succeed, then DOE will succeed and Congress will be able to redirect future funds to traditional defense mission activities rather than to a delayed cleanup. The CERCLA and BRAC reforms I have suggested would enhance ICF Kaiser's ability to provide cost-effective remediation services throughout the DOD and DOE complexes.

I would be happy to answer questions that you, Mr. Chairman, or the other members have. And I thank you again for this opportunity to share our views with you.

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Attachment A

ATTACHMENT A

ICF KAISER

ICF Kaiser International, Inc. has worked in a partnership with the U.S. Department of Defense (DOD) for more than 60 years. The firm's broad range of services has expanded over the years to respond to the DOD's evolving national defense and environmental needs. The services provided by ICF Kaiser include:

- Environmental investigations, studies, and assessment
- Hazardous, transuranic, and radioactive waste (HTRW) management
- Regulatory compliance
- Environmental remediation and restoration
- Architectural/engineering (A/E) design services
- Construction/construction management

The award fees and commendations received by ICF Kaiser show a consistent record of excellent performance on DOD contracts. The attached table speaks to ICF Kaiser's outstanding record of cost and schedule control as well as the technical capabilities and innovations.

ICF Kaiser's record of repeat business with the DOD stands as testimony to the quality of its services, as demonstrated below:

DOD Agency	Number of Contracts
U.S. Navy	120
U.S. Army	126
U.S. Air Force	47

Under nearly 300 contracts, ICF Kaiser has performed nearly one billion dollars worth of work for the DOD. ICF Kaiser's resulting knowledge of DOD priorities, operations and procedures enables the firm to offer high quality technical services that respond to today's environmental and national defense challenges. A representative sample of recent projects performed for the various branches within DOD follow.

U.S. Navy

- A/E Services for Utility Upgrades in support of the Base Realignment and Closure (BRAC) III Program at Naval Air Station (NAS) Lemoore, CA
- Environmental Audits at Various U.S. Navy Locations
- Indefinite Quantity Contract for A/E Services for Environmental and Hazardous Waste Engineering at Various Navy Southwest Division Locations
- Indefinite Quantity Contract for A/E Services for Site Assessment for UST Sites at Camp Pendleton, CA
- A/E Services for Plans and Specifications for MCON Project, Industrial Wastewater Treatment and Recycling Facility, Marine Corps Logistics Base, Barstow, CA
- A/E Services for Various Environmental/Geotechnical Engineering Planning and Design Projects
- Hazardous Materials Assessment at the Oakland Naval Supply Center, CA
- Engineering and Support Services for TRIDENT Submarine Refit Facility, GA

- Construction, Construction Management, and Engineering Procurement in Support of Diego Garcia Island Expansion and Construction

U.S. Air Force

- Engineering Study, Master Plan, Cost Estimating, and AutoCad Drafting for Electrical Infrastructure Systems at Kirtland Air Force Base (AFB), NM
- Construction and Testing of Demonstration Silos in Support of ISST Test Program at Luke AFB, AZ
- Title II Inspection and Field Engineering for the Secure Computer Vault Facility at Kirtland AFB, NM
- Installation Restoration Program Support in Qualitative and Quantitative Evaluation of Hazardous and Toxic Waste Sites for the U.S. Air Force Center for Environmental Excellence

U.S. Army

- Total Environmental Restoration Contract (TERC) for U.S. Army Corps of Engineers (USACE), Baltimore District
- HTRW Remediation Services for USACE, Savannah District
- HTRW Remediation Services for Northern Boundary Groundwater at Milan Army Ammunition Plant, TN
- Indefinite Quantity Task Order Environmental Services Program Support for U.S. Army Environmental Center Region 5 Sites
- Construction Management and Operation of Groundwater Remediation Systems at Umatilla Army Depot, OR
- Contaminant Remediation of Washout Plant Building at Umatilla Army Depot, OR
- Construction and Management Support of Tinker AFB Restoration, OK
- Total Environmental Program Support (TEPS) Contract to Support Remediation Activities at Various U.S. Army Facilities

Attachment B

ATTACHMENT B

CH2M HILL's Department of Defense and Department of Energy Environmental Experience

CH2M HILL is an industry environmental leader, with a record of performance in complex program integration and innovation resulting in cost and schedule savings for environmental cleanup. The billion-dollar-revenue firm provides consulting, design, construction, operating and systems integration services through 7,500 employees, spanning 120 offices worldwide.

CH2M HILL has received numerous preferred rankings and honors as an industry leader: the largest environmental engineering firm, and the industry's preferred environmental employer for the past four years (Engineering News-Record; the nation's top environmental engineering/consulting firm (Environmental Business Journal); the largest U.S. contract operator of environmental facilities; and the recipient of more than 100 engineering and construction honor awards from the American Consulting Engineers Council and the American Academy of Environmental Engineers. CH2M HILL also was recently named as the Society of American Military Engineers' prestigious "Sustaining Member of the Year" for 1995.

CH2M HILL has served the departments of Defense and Energy for 40 years, providing a wide range of engineering, construction management, operations and program integration services. The firm has performed environmental projects at 200 military installations worldwide and 12 DOE sites. Since 1990 alone, CH2M HILL has completed more than 1,000 Environmental Restoration/Waste (WM) assignments for DOD and DOE valued at greater than $500 million. In this same period of time, CH2M HILL innovations have resulted in more than $300 million in ER/WM savings at Defense and Energy sites.

CH2M HILL has been a pioneer in implementing cleanup programs for government. CH2M HILL was one of the first contractors for several cleanup programs, including the EPA Superfund Program; the Air Force and Navy Installation Restoration Program; the Navy CLEAN Program; the Army BRAC Environmental Program; and DOE's Integrating Management Contract Program (joint venture with ICF Kaiser).

CH2M HILL also has been a leader in restoration process improvement innovation. The firm pioneered the use of the Observational Approach for EPA and later was the first to implement it on DOD, EPA and private industry sites. CH2M HILL also worked with DOE to develop the SAFER process, later implementing it at four DOE sites.

ATTACHMENT B

CH2M HILL Landmark Environmental Accomplishments		
CERCLA passed	1980	
	1981	CH2M HILL wins first EPA Superfund remedial contract CH2M HILL awarded first Air Force IRP and Navy NACIP contracts
	1982	
	1983	CH2M HILL designs first Superfund RA implemented by USACE
RCRA Amendments passed	1984	CH2M HILL uses first onsite mobile laboratory
	1985	CH2M HILL uses first application of SVE at a Superfund site
SARA passed	1986	CH2M HILL performs first DOD-wide waste minimization evaluations
	1987	CH2M HILL prepares EPA's "RI/FS Guidance"; CH2M HILL awarded American Consulting Engineers Council Honor Award for groundwater cleanup project at Schofield Barracks, Hawaii
BRAC I	1988	CH2M HILL proposes Observational Approach to EPA Later application at Robins AFB results in a potential $20 million savings
	1989	CH2M HILL develops CORA: first computer model to estimate remediation costs CH2M HILL prepares and obtains first RCRA permit for an Army Chemical Demilitarization Plant
	1990	CH2M HILL prepares EPA's "Streamlining Municipal Landfill RI/FS Guidance"
BRAC II	1991	CH2M HILL begins work on first Navy CLEAN program contract
CAMU Rules adopted	1992	CH2M HILL prepares "POL Remediation Handbook" for Air Force
BRAC III	1993	CH2M HILL develops streamlined BRAC NEPA analysis processes for Army BRAC installations
	1994	CH2M HILL's "Plug In FS" approach for McClellan AFB receives regulatory approval, resulting in a potential $10 million savings
BRAC IV	1995	Kaiser-Hill (CH2M HILL joint venture) awarded DOE's first Integrating Management Contract for the $3.5 billion cleanup of the Rocky Flats Environmental Technology Site

Attachment C

Evolution of the Rocky Flats Project



Current view of Rocky Flats showing many buildings and roads.



Rocky Flats in 2005 (completion of Phase I) showing only the 3 new storage buildings and outlines of 4 capped areas.



Rocky Flats in 2015 (completion of Phase II) with no buildings (a low-level waste facility may remain) and only outlines of capped areas. The final condition (Phase III), if funded, would remedy capped and nearby areas to residential standards, up-graded from the open space condition at the end of Phase II.

Attachment D

Attachment D

Interim (Phase I) Closure Project Funding Profile Comparison*

Attachment E

An Introduction to Kaiser-Hill Company, LLC

To address the daunting environmental cleanup, waste management, and plutonium-risk-reduction challenges posed by the Department of Energy's nuclear weapons complex, two of the world's leading environmental and engineering firms—ICF Kaiser and CH2M HILL–formed a joint venture, Kaiser-Hill Company, LLC.

"With the largest inventory of unencapsulated plutonium-bearing material in the nation, Rocky Flats is one of the most intricate sites in the Department of Energy complex. Some nights I lose sleep worrying about the possibility of an incident involving our plutonium."

—Mark N. Silverman, Manager, U.S. Department of Energy Rocky Flats Environmental Technology Site, February 1996

With 7,500 employees throughout the world, ICF Kaiser is one of the largest engineering, construction, and consulting services companies. The firm's partnership with DOE was forged at the Hanford Site in Washington state in 1952, when the Henry J. Kaiser Company began construction of a $120 million plutonium plant. Today, its services as the architect/engineering, construction, construction management, and base operations contractor at Hanford support DOE's multi-billion-dollar, post-Cold War cleanup and economic conversion. ICF Kaiser's range of services has expanded over the years to respond to DOE's evolving national defense, energy, and environmental needs. Working at 39 of 40 DOE facilities, the company has executed projects that range from the design and construction of multi-million-dollar waste management facilities, to multi-site environmental audits and assessments, to the implementation of remedial actions.

CH2M HILL brings 50 years of environmental experience to bear on the challenges of cleanup at a former nuclear weapons site, defense installations and commercial facilities. CH2M HILL is the nation's largest environmental engineering firm, with a record of performance integrating large, multi-disciplinary projects. The billion-dollar-revenue firm provides consulting, design, construction, operating and systems integration services through 7,500 employees, spanning some 120 offices worldwide.

Kaiser-Hill was awarded the integrating management contract for the Rocky Flats Environmental Technology Site in Golden, Colorado, in April 1995 and assumed operations of the 6,500-acre site July 1, 1995. Located less than 15 miles from downtown Denver, Rocky Flats has more than 14 U.S. tons of plutonium—more than any other DOE manufacturing facility. Nearly 40 years of nuclear weapons production at Rocky Flats left behind a legacy of radioactive waste and environmental contamination. Current waste inventories include 50,000 containers of transuranic and low-level radioactive wastes. These wastes will remain radioactive for tens of thousands of years. The amount of waste is expected to soar in the future during cleanup and decommissioning. Rocky Flats has approximately 170 individual areas of contamination, some of which pose a potential threat to surface and groundwater. While emergency mitigative measures have been completed, the site is located upstream of the water supply for 400,000 people. With no future weapons

production mission, the goal is to clean up the site and decontaminate the facilities at Rocky Flats.

To address these challenges, Kaiser-Hill assembled a team of best-in-class companies—each with expertise in a specific area of operations at the site. The Kaiser-Hill Team's scope of work includes special nuclear materials management, waste management, environmental restoration, environmental monitoring, safety and quality systems management, community outreach, economic conversion, and site operations. In addition to Kaiser-Hill, team members include the following four major contractors and numerous subcontractors.

Safe Sites of Colorado—a combining of Westinghouse, a pioneer in DOE nuclear safety, and Babcock & Wilcox, the largest commercial producer of highly enriched uranium fuels.

Rocky Mountain Remediation Services —a joint effort of Morrison Knudsen, with an outstanding record for achieving cost-effective environmental restoration, and British Nuclear Fuels Limited (BNFL), an international leader in cost-effective nuclear waste management.

DynCorp Inc.—a company that manages successful site support operations at 45 federal facilities.

Wackenhut Services, Inc.—a top-performing commercial and government security services contractor with 30 years of DOE experience.

Kaiser-Hill's contract at the Rocky Flats Environmental Technology Site is one of the first contracts awarded under the DOE's contract reform initiative. Under the contract structure, Kaiser-Hill is the management integrator assigning and integrating tasks among its subcontractors. The contract, valued at $3.5 billion over five years, represents a benchmark for performance-based contracting. Under the performance-based contract, 85 percent of the company's fee is based on meeting specific goals, called Performance Measures, agreed upon with DOE. Under the Kaiser-Hill contract, employees are sharing in performance earnings for the first time in more than 20 years; 20 percent of the company's performance fee is passed on to its employees. All subcontracts to Kaiser-Hill are also performance-based. Kaiser-Hill takes a project approach to Rocky Flats and views each task as a project with a beginning and an end.

"Today, however, I am very optimistic about our ability to make real progress in cleaning up Rocky Flats and making it safe. Kaiser-Hill, our new integrated management contractor, has brought best-in-class services and the world's leading experts to bear on our difficult challenges.

In fact, more real work was accomplished during Kaiser-Hill's first six months at Rocky Flats than was accomplished during the last five years. Kaiser-Hill has demonstrated significant initiative and innovation in developing bold alternatives for the accelerated risk reduction and closure of Rocky Flats. We are truly paying for progress."

—Mark N. Silverman, Manager U.S. Department of Energy Rocky Flats Environmental Technology Site, February 1996

Key accomplishments under the integrating management contract at Rocky Flats include development of a new Rocky Flats Cleanup Agreement; consolidation of 16 cleanup areas into two at a potential cost savings of greater than $5 million;

successful remediation of a former chemical dump site, Ryan's Pit, and the first-ever onsite treatment of environmental restoration waste at Rocky Flats using a low-temperature process; excavation of several hazardous contamination hot spots; venting of more than 2,500 residue drums to prevent potential problems associated with plutonium buildup; draining of seven tanks containing plutonium nitrate solutions; stabilization of plutonium solutions through cementation; brushing and repackaging of plutonium items with potential fire concerns; and the repackaging of plutonium items in contact with plastic.

Kaiser-Hill is a partner in the cleanup of Rocky Flats—a partner with the DOE, the employees of Rocky Flats, the Environmental Protection Agency, the Colorado Department of Public Health and Environment, local elected officials and the Rocky Flats community.

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Attachment F

The Rocky Flats Closure Project

Summary

The Rocky Flats Closure Project proposed by Kaiser-Hill would radically accelerate the reduction of site risks and accomplish site closure, with final costs reduced significantly over current plan. Within 9 years and for less than $7 billion, waste and plutonium would be safely stabilized and placed in consolidated long-term storage. The site would be cleaned up to levels that would allow eventual unrestricted, open space, and industrial uses. The only remaining buildings on-site, other than those for commercial reuse, would be new facilities for plutonium, transuranic (TRU) waste and low-level waste. This interim on-site storage condition would require less than $50 million per year in operation costs compared with a current site budget of $700 million.

A second phase of the project would remove plutonium and TRU waste to off-site repositories and demolish the on-site storage facilities for a total additional cost of approximately $1.5 billion. The schedule for this second phase is dependent on the availability of repositories or other disposition solutions. If repositories become available in the next several years, this second phase could be completed simultaneously with the first phase. The annual operating cost of the site at the end of this second phase would be $5 to $10 million per year, depending on the waste storage configuration. With the exception of less than 200 acres that would be safely capped, all land would be reusable by the public.

A third phase could be the cleanup of 1,500 acres of the site to residential, rather than to commercial and open space standards, and removal of low-level waste. This final cleanup could cost many billions of dollars. While this end state is important to some stakeholders, from a technical perspective, it provides negligible additional risk reduction as long as the site remains in an open space or commercial land use configuration.

The key variable to all costs is time. As annual funding is reduced, the cost and time required to complete the project increases dramatically due to high baseline operations and maintenance costs and inflation. When funding is reduced to near the current baseline cost of $400 million per year, it becomes impossible to predict if closure ever can be achieved without reducing the scope of the closure to a mothball type of alternative.

The project has been developed in conjunction with the development of a site vision and the negotiation of the draft Rocky Flats Cleanup Agreement with the U.S. Environmental Protection Agency (EPA) and the State of Colorado. While not yet approved by the regulators or the Department of Energy (DOE), it is supported by, and consistent with, the details of the draft objectives for the site contained in the preamble of the draft Cleanup Agreement.

Project Origins

When Kaiser-Hill was awarded the contract in April 1995, there was a strong call for action and vision at the site. The official closure cost in the DOE Baseline Environmental Management Report (BEMR) was $22.5 billion, and the cleanup would not be completed until the year 2065. The unofficial cost recognized by the site's submittal to the BEMR was $35 billion by the year 2080. With these long

time frames, the site was caught between the need to maintain and upgrade the buildings to last most of another century versus accomplishing risk reduction. DOE and the Defense Nuclear Facilities Safety Board (DNFSB) noted the dangers and diseconomies of this approach, and the stakeholders were impatient as little cleanup had been accomplished in the five years since production ceased.

To respond to these concerns, Kaiser-Hill set about to radically redesign the approach to site closure. Taking advantage of the experience of ICF Kaiser and CH2M HILL in site cleanup, a perspective on a new regulatory model for cleanup, EPA's Brownfield Initiative and ideas expressed by DOE, we designed a process that could be implemented within a decade at less than half the previously estimated cost. Since July, we have evaluated a full spectrum of alternatives for site closure. We have confirmed a $6.7-billion cost and a 9-year schedule. Stakeholder concerns expressed from the initial planning efforts could be substantially resolved for less than a 10% increase in the initial project cost and have been included in this $6.7-billion estimate. This evaluation also demonstrated the financial infeasibility of a closure to residential standards (much more than $20 billion). It also concludes that leaving the buildings standing in various states of deactivation (mothball alternatives) could be accomplished for a total closure project cost in the $3 billion to $5 billion range. However, this would require long-term annual operations and maintenance costs in the $50-million to $150-million range, and tens of kilograms of widely dispersed plutonium contamination would be left in place in the buildings, posing a long-term hazard to the community.

Background and the Existing Site

Rocky Flats is located 15 miles upwind of downtown Denver, Colorado and within a 50-mile radius of 2.2 million people. It is also upgradient of the water supply for 400,000 of those people. While the water supply issue has been somewhat mitigated by a bypass system for the site runoff, the site still has more than 14 tons of plutonium—the largest quantity of unfinished product in the United States. Three tons of the plutonium is in the form of manufacturing residues contained in more than 7,000 drums. The public is concerned about the site's two major historical process fires which spread plutonium contamination downwind toward Denver, that about half of the residues are in highly dispersible ash form, and that the DNFSB has labeled two of Rocky Flats' seven plutonium and uranium processing buildings as the most dangerous in America. A significant risk to the workers is the presence of 30,000 liters of plutonium/acid solutions that pose a criticality hazard, since many of the tanks containing the solutions have not been internally inspected in several years.

The site has been the center of controversy for many years, first as a target for anti-nuclear weapons protests and later as a result of its listing on the Superfund National Priorities List and its having been raided by the FBI for environmental crimes.

Rocky Flats opened in 1951 and, until 1990, manufactured plutonium, uranium, and stainless steel nuclear weapons components. It has 500 facilities to support refining, alloying, forging, machining, testing, and materials recovery operations. The recovery operations included incineration and a variety of chemical reprocessing unit processes. Additionally,

the machining operation consumed large quantities of organic lubricants and solvents. The site currently occupies 6,500 acres, of which 300 acres comprise the main plant area. It contains 167 sites of known contamination (Individual Hazardous Substance Sites - IHSS) and currently has more than 50,000 containers of TRU, low-level and hazardous waste in inventory. The buildings, which comprise more than 6,000,000 square feet, contain miles of contaminated piping, hundreds of glove boxes, tanks and other process equipment.

Project Description

As described above, the project is envisioned to be executed in three phases. Phase I is the key closure and risk reduction phase and could be accomplished by 2005 for less than $7 billion. Phase II is a shipment and further closure phase where all TRU waste and plutonium would be shipped off-site and the two interim storage facilities demolished. This could be accomplished for about $1.5 billion and would take two to three years to accomplish after a repository is available. This is anticipated to end between 2005 and 2017. Phase III would include any additional cleanup that was desired at the time. This could include removal of stored low-level waste and further cleanup of the central 1,500 acres of the site that would have been closed to open space and commercial use standards in Phase I. This could cost many billions of dollars and take many years to complete.

Phase I—Near Term

Phase I, which would end from 2005 to 2020 or beyond, depending on annual funding, includes the following activities:

Plutonium Stabilization, Consolidation and Storage Activities

- Construct a new, interim plutonium storage facility to current safety standards.
- 6,600 kilograms of plutonium metal and 3,200 kilograms of plutonium compounds would be stabilized, packaged for long-term storage, and stored in the new interim plutonium storage facility awaiting off-site shipment.
- 3,100 kilograms of plutonium contained within 100,000 kilograms of residue materials resulting from past production activities would be stabilized, repackaged and stored for eventual shipment as TRU waste to DOE's Waste Isolation Pilot Plant (WIPP).
- 6,700 kilograms of enriched uranium would be packaged and shipped off-site.

Facility Decommissioning Activities

- All of the site's 500 facilities (of which approximately 50 are radioactively contaminated with plutonium or uranium) would be demolished with the exception of the new plutonium, TRU waste and low-level radioactive waste storage facilities or any other facilities deemed to be commercially valuable.
- Waste materials from demolition activities would either be sent off-site for disposal (uncontaminated debris) or stored on-site (radioactive waste).

Waste Management Activities

- Construct a new, interim storage facility for the storage of an estimated 2,500 cubic meters of TRU waste.
- Ship most TRU waste to WIPP, starting in 1998, averaging 1,200 cubic meters shipped each year. (It is anticipated that shipment of TRU waste would not be completed until Phase II).
- Construct new, retrievable, monitored storage/disposal facilities for approximately 330,000 cubic meters of low-level radioactive wastes (including mixed) and then place all waste in these storage/disposal facilities.
- Ship, for off-site disposal, at least 2,400 cubic meters of low-level radioactive waste (including mixed) annually.
- Ship an estimated 11,000 cubic meters of hazardous waste off-site for disposal.

Environmental Cleanup Activities

- Achieve the following land uses (i.e., cleanup would allow these land uses):
 - Approximately 6,300 acres would support open space uses (5,000 acres to residential standards)
 - Approximately 100 acres would support future commercial industrial use
 - Approximately 100 acres would be closed landfills and capped areas
- Clean up 55 Individual Hazardous Substance Sites to reduce the source volatile organic contamination. As part of this cleanup, treat 135,000 cubic meters of soil.
- Control sources of contamination throughout the life of the project ensuring that State-mandated water quality standards are not exceeded.
- Construct final covers or caps which would be placed over contaminated soils that remain, contaminated building debris, old landfills, and the low-level radioactive waste retrievable and monitored storage/disposal facility to inhibit contaminant migration.
- Perform continuous environmental monitoring.

Phase II Intermediate Term

Phase II includes the removal of plutonium and TRU waste stored in Phase I and the demolition of the storage buildings. It would cost about $1.5 billion and take about four years (depending on annual funding) to complete from the opening of repositories. This is expected to be completed no later than 2017 but could be completed shortly after 2005. Low-level waste would remain stored on-site and environmental monitoring would continue.

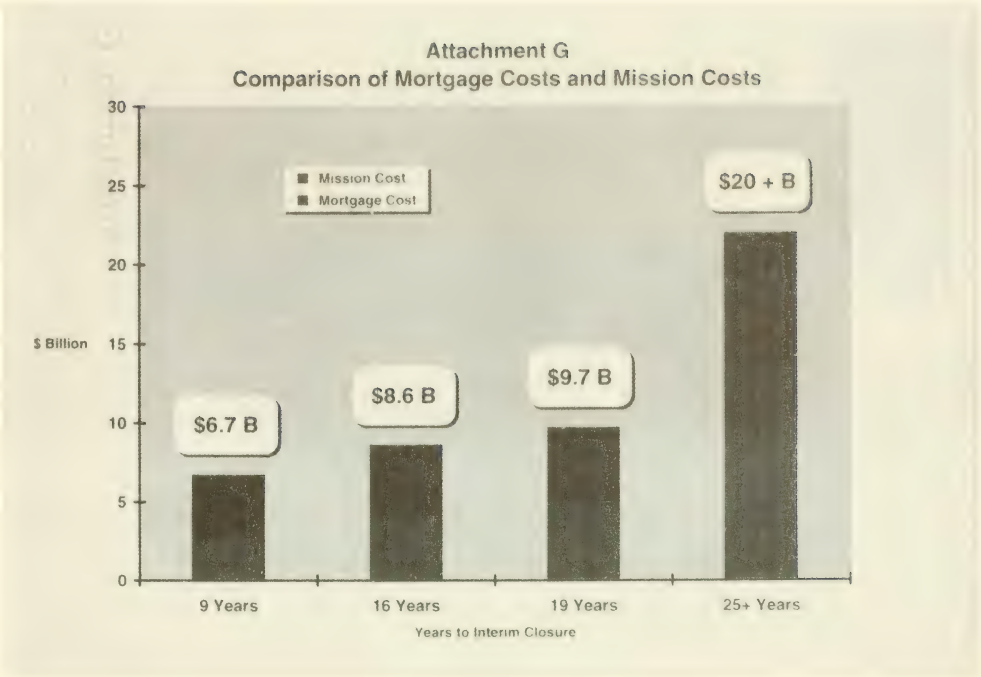
Phase III Final Condition

Phase III is dependent on the desire to fund additional activities at the time, since the site risk and hazard remaining would be very low as long as the land use continued to be open space or commercial. The work remaining to be accomplished to return the site to unrestricted residential use standards would be the removal of the

stored low-level waste and the further cleanup of the 1,500 acres of land that had been cleaned up in Phase I to open space and commercial standards. With current technology, this would take much more than $10 billion and many decades to accomplish.

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Attachment G


Attachment G
Comparison of Mortgage Costs and Mission Costs
Mission Cost
Mortgage Cost
$6.7 B
$8.6 B
$9.7 B
$20 + B
$ Billion
30
25
20
15
10
5
0
9 Years
16 Years
19 Years
25+ Years
Years to Interim Closure

Attachment H

Stephen W. Kahane

Dr. Stephen W. Kahane is President of ICF Kaiser International's Federal Programs Group. ICF Kaiser International is a publicly traded (NYSE) consulting, engineering, and construction firm specializing in the environment, infrastructure, and process industries. ICF Kaiser is projecting revenues of $1.1 billion for calendar year 1995.

The Federal Programs Group (FPG) encompasses the environmental, remediation, engineering, and construction programs performed by ICF Kaiser International for the federal government. FPG represents over $800 million of ICF Kaiser International's revenues. Major clients include the Department of Energy (DOE) and the Department of Defense (DOD). ICF Kaiser International is currently managing major programs at two of DOE's largest and most technically challenging former nuclear weapons sites. Kaiser-Hill, ICF Kaiser International's joint-venture subsidiary, is serving as DOE's integrating management contractor for the $3.5 billion operation and clean-up of the former nuclear warhead manufacturing facility at Rocky Flats, Colorado. At the Hanford nuclear site, ICF Kaiser Hanford is providing DOE with architect-engineer, constructor, construction management and site operations support. For DOD, ICF Kaiser is working with the Army, Air Force, and Navy in cleaning up former military bases. Recently, ICF Kaiser was awarded DOD's largest environmental clean-up job to date—a $330 million contract to support the Baltimore District of the Army Corps of Engineers. ICF Kaiser is also supporting the Department of Energy at ten other national laboratories and former defense sites, as well as other federal and related agencies including the Environmental Protection Agency, U.S. Postal Service, General Services Administration, and NASA.

Since joining ICF in 1985, Dr. Kahane has served in a number of senior executive positions that have included Executive Vice President and later, Chairman and CEO of ICF Technology (ICF's environmental science & engineering subsidiary); Senior Vice President and Director of ICF Kaiser Engineers; Director, ICF Kaiser Hanford; and Director Kaiser-Hill LLC. In addition to his responsibilities managing Federal Programs, Dr. Kahane also serves as an Executive Vice President of ICF Kaiser International.

Prior to joining ICF in 1985, Dr. Kahane served as Vice President for Environmental and Hazardous Waste Programs at Jacobs Engineering Group, Inc. Dr. Kahane came to Jacobs Engineering in 1981 as part of an acquisition of Environmental Resources Group, an environmental consulting firm that he co-founded in 1977. During his professional career, Dr. Kahane also served as a visiting lecturer at the UCLA School of Public Health.

Dr. Kahane holds a Doctorate in Environmental Science & Engineering, a Master of Science in Public Health (Delta Omega), and a B.A. degree in Bacteriology from the University of California, Los Angeles.

Mr. HUNTER. Thank you, Mr. Kahane, and please excuse my sidebar conversations here.

Dr. Narath, thank you for being with us. The floor is yours.

STATEMENT OF ALBERT NARATH, PRESIDENT AND COO, ENERGY AND ENVIRONMENT SECTOR, LOCKHEED MARTIN CORP.

Mr. NARATH. Thank you, Mr. Chairman, members of the subcommittees. Thank you for having me.

I am Al Narath, and I am President of Lockheed Martin's Energy and Environment Sector. I have held this position since August 15 of last year, at which time Lockheed Martin brought together elements derived from both Heritage Lockheed and Martin Marietta companies, involved in work primarily for the Department of Energy, centered on energy and environmental activities. We employ some 30,000 individuals, most of them under contract, working for the Department of Energy.

There are two principal components to the business that we have created. The first consists of M and O contracts, again primarily for the Department of Energy. We manage three of DOE's National Laboratories—INEL [Idaho National Engineering Laboratory], Oak Ridge National Laboratory, and Sandia. We also manage the K–25 and Y–12 facilities in Oak Ridge. We are on the Bechtel team at the Nevada test site, and we are managing the shutdown of the Pinellas plant. And we also, incidentally, operate the enrichment facilities at Portsmouth, Ohio and Paducah, Kentucky for U.S. Enrichment Corporation.

We are also moving out into the domain of privatized environmental restoration. We are pursuing a joint venture with Molten Metal Technologies based on their proprietary catalytic extraction process for which we hold exclusive license both for DOE and DOD markets. And finally, we recently created a system integration company, the Lockheed Martin Advanced Environmental Systems Company. Its responsibilities will center on very large privatized remediation work for DOE and DOD; and by the way, it is currently managed Pit-9, a very large, $200 million privatized remediation job at the Idaho National Engineering Lab.

It is late in the day, and I am not going to belabor the accomplishments that we have achieved. They are similar to what you have already heard from the other witnesses. Let me just say, as others have said before me and will say after me, that it is not fair to support the perception that the Department of Energy and the Department of Defense are not making significant progress in pursuing their environmental restoration initiatives. There is a great deal of progress that has been made, and what is most encouraging from my point of view is that I think we are acting on lessons learned, and the progress really is accelerating.

There are very significant accomplishments at Oak Ridge, Sandia and INEL; those are included in my written statements. Pit-9 is moving forward. There are some very encouraging advanced technology activities taking place in our M–4 joint venture. For example, for [USEC], [United States Enrichment Corporation] M–4 in Oak Ridge is currently beginning to recycle depleted uranium hexafluoride, which exists in enormous quantities. There are some

15 million kilograms of these tails that USEC owns at the present time. DOE has some 550 million kilograms of uranium hexafluoride tails that at some point need to be processed to stabilize the material into an oxide form.

By the way, with our process, we can recover commercially valuable hydrogen fluoride and sell it, thereby bringing down the cost of this remediation.

It is probably time for me to conclude, so let me just summarize very briefly, Mr. Chairman, some of my thoughts on the subject.

I think we would all agree that the Government has an important job to be done in this field. We are obviously eager to help. I do believe that DOE is on the right track, is making rapid progress in carrying out its environmental remediation mission, and I think it is doing so in a rather responsible manner.

I would like you to know that Lockheed Martin recognizes the desire on the part of the Government to bring down cost, to do so by demanding greater accountability on the part of the contractors, and we very strongly support contracting approaches that shift risk from the Government to the contractor. I believe it is important that private sector capital investments be attracted. I support the notion of fixed price contracting as a logical step in that direction. But I believe that we have to move along that path in carefully measured steps. The Government does need to engage the skills and financial muscle of major corporations in the environmental restoration endeavor; that much is certain. However, let me point out that no company that fits this description would pursue opportunities that involve unquantifiable risks of such magnitude that the company would be betting its very existence.

Uncertainties arising from changes in the regulatory environment and the lack of large-scale experience with many of the promising new technologies need to be taken into account. I think it is important that the Government recognize these business risks and select from its tool kit of contracting options the approach in each case that will best suit the specific task that needs to be accomplished.

Of course, it is also critically important that the development of new environmental restoration technologies be encouraged and that ways be found in a seamless fashion to insert these technologies as they become available.

Finally, let me suggest that the Congress could improve the economic viability of the DOE environmental management program by establishing, where it makes sense, de minimis levels of contamination in order to allow free domestic release of trace contaminated material. As you well know, there are enormous quantities of metals and other materials that could be recovered from decommissioned DOE facilities and recycled into useful products, products that pose absolutely no threat to public health and safety if such legislation were enacted. If such material mining could be turned into an economically attractive option, I believe that the cost of cleaning up many of DOE's facilities could be significantly reduced.

In summary, the Lockheed Martin Energy and Environment Sector looks forward to working with both subcommittees on meeting the challenge of Federal environmental restoration problems. We would like to do so in an aggressive and cost-effective manner.

I have to tell you that the last 7 months have probably been the most exciting of my career. They have clearly matched the manic-depressive nature of my character.

Thank you. [Laughter.]

Mr. BATEMAN. I am very happy to hear that Dr. Narath. I do not know whether you have material in your written statement with reference to this recovery of trace materials and recycling; if you do not, I would appreciate it very much if you would simply write to me and give me your ideas on that thought, because it is certainly something I would want to see pursued.

Mr. NARATH. It is mentioned in my formal statement, but I will provide you additional information.

Mr. BATEMAN. With that, we will turn to Mr. Gallagher, and thank you all for being here.

[The prepared statement of Mr. Narath follows:]

Statement of Albert Narath
President and COO
Energy and Environment Sector
Lockheed Martin Corporation

Committee on National Security
Readiness and Procurement Subcommittees
March 21, 1996

Statement of Dr. Albert Narath
President & CEO Energy and Environment Sector
Lockheed Martin Corporation
before the Military Readiness and Military Procurement Subcommittees of the House National Security Committee
March 21, 1996

Mr. Chairman, and members of the subcommittees, I appreciate your invitation to testify before the two subcommittees. I am Al Narath, President and COO of Lockheed Martin Corporation's Energy and Environment Sector (LM/E&E). The Sector plays a significant role in DOE Environmental Restoration Programs, including M&O responsibilities for three major DOE sites as well as a number privatized projects. In support of these activities we have been assembling a "tool box" of technologies for cost-effective remediation of radioactive, hazardous and mixed waste. We aim to bring these technologies to bear on both DOE and DoD clean-up challenges.

There is little need to belabor the obvious: The environmental management challenges facing the nation, and DOE and DoD in particular, are as staggering in complexity and potential cost as they are enormous in importance. It is difficult to imagine that human progress can be sustained at any reasonable rate in the absence of cost-effective means of remediating the environmental abuses of the past and of avoiding similar problems in the future. Given current cost estimates for restoration of DOE and DoD sites, it might appear tempting to slow actual clean-up efforts and concentrate on the development of more cost-effective site remediation technologies. However, this would be a mistake, not only because it would be in violation of existing clean-up commitments, but because the current state of technology properly managed can deal with many of the nation's most pressing environmental problems. To be sure, there will continue to exist an urgent need to insert enhanced technologies, guided by the practical experience gained in pursuit of ongoing restoration projects. Success will ultimately hinge on how effectively public- and private-sector resources and capabilities can be brought to bear on the problem, ranging from investments in large-scale waste processing facilities to the seamless integration of advanced technologies.

Lockheed Martin is strongly committed to environmental restoration and waste management as a core business. This is evidenced by the establishment of LM/E&E as the fifth corporate sector on August 15 of last year. This action not only reinforced the corporation's enduring commitment to its DOE Management and Operating (M&O) responsibilities, but also signaled an intent to greatly expand its involvement in the environmental market. Today I want to review ongoing environmental restoration (ER) work and outline our approach to privatization of major ER initiatives.

LOCKHEED MARTIN E&E SECTOR

Our Energy and Environment Sector has two major components. The M&O responsibilities for DOE facilities in Idaho (INEL), Tennessee (ORNL, K-25, Y-12) and New Mexico (SNL) comprise one of these components. The second component consists of privatized remediation activities centered in M4, our Joint Venture with Molten Metal Technologies, and in our newly created systems integration company Lockheed Martin Advanced Environmental Systems (LMAES). We also operate the uranium enrichment plants at Paducah, Kentucky and Portsmouth, Ohio for the US Enrichment Corporation (USEC), and support DOE remediation efforts at these two sites.

[I] LM/E&E: M&O Responsibilities

Lockheed Martin Corporation has been the M&O contractor for DOE's Oak Ridge facilities since 1988. These facilities consist of the following: the Oak Ridge National Laboratory (ORNL), the Y-12 Weapons Production Plant and the uranium enrichment facility (K-25). The Oak Ridge experience has provided invaluable insights regarding cost-effective approaches to clean-up across the DOE complex. Lockheed Martin has also been the M&O contractor at INEL for the past year and a half. I believe that the performance-based features of the INEL contract deserve some attention as a promising mechanism for achieving business-like operations in the ER mission. In addition, Lockheed Martin was awarded the M&O contract for the Sandia National Laboratories (SNL) in 1993. As you know, SNL has "cradle to the grave" responsibility for system integration and the design of non-nuclear parts of the nation's nuclear weapons. SNL has had a limited role in ER which it has performed cost-effectively. In all of these cases, we have sought to explore the most cost-effective avenues to environmental restoration by focusing on total life-cycle costs.

[II] LM/E&E: Privatized ER Activities

(1) M4 Environmental

M4 is a 50/50 limited partnership between Lockheed Martin Corporation and Molten Metal Technology, Inc. A key element of M4's mission is to provide technology-based waste-processing solutions to the government's most troubling environmental management problems. Formed in August 1994, the partnership combines the unique recycling technology developed by Molten Metal with the system-integration experience, resources and technologies of Lockheed Martin. M4 has exclusive rights to apply Molten Metal's proprietary Catalytic Extraction Process (CEP) in the DOE, DoD and USEC markets. An attractive feature of the technology is its potential for processing many hazardous, radioactive and mixed wastes into useful products.

CEP converts waste into its constituent elements followed by controlled chemical transformation and separation. The process results in dramatic reduction in volumes of radioactive waste by isolating the radioactive components in new stable chemical forms. It also provides options for recycling the non-radioactive constituents.

With the pending integration into M4 of Lockheed Martin's Retech environmental division (subject to governmental approval), the M4 portfolio will also include plasma processing technology, as well. Retech will continue to design and manufacture metallurgical and toxic waste processing equipment for domestic as well as international markets. I anticipate that M4 will acquire additional processing technologies in the future.

(2) Lockheed Martin Advanced Environmental Systems (LMAES)

In organizing LMAES, we are repositioning and restructuring elements of the Lockheed Martin Environmental Systems & Technologies company currently based in Houston, Texas. LMAES will be a wholly owned Lockheed Martin subsidiary headquartered in Albuquerque, New Mexico. Dr. Jim Tegnelia will serve as president. The principal LMAES ER business focus will be on large remediation projects, where it plays the role of systems integrator, with M4 acting as processing subcontractor. The teaming abilities of LMAES and M4 should allow us to bring a strong, integrated approach of cost-effective technology and systems engineering to the toughest ER challenges.

[III] DOE Strategic Goals: Framework for LM/E&E Actions

As you are aware, last fall Mr. Thomas Grumbly, the DOE Assistant Secretary for Environmental Management, articulated six strategic goals to guide the program and serve as a yardstick for measuring progress. I applaud the actions taken by Mr. Grumbly in implementing a more focused, business-like approach to EM mission execution. We are intent on supporting DOE's strategy and believe we are contributing directly to all six of the stated goals through systems engineering, application of advanced technologies, and efficient ways of doing business.

Goal #1: To eliminate and manage urgent risks

We are continuing to meet this goal in clean-up at Oak Ridge, Idaho and Sandia and propose to attack urgent problems at Hanford, Idaho and other sites. As part of my objective to obtain ER systems integration throughout our efforts, we are establishing a common risk model.

Goal #2: To emphasize health and safety for workers and the public.

We take this goal seriously and have taken aggressive action in the wake of several recent incidents, including a fatal accident at the Idaho complex. Our approach is to

confront the problem, capture "lessons learned", formulate corrective action procedures, implement them and move on to the next tough job.

Goal #3: To establish a system that is managerial and financially in control.

Lockheed Martin Corporation has a unique opportunity to exploit commonality of requirements through our position as M&O contractor at three major sites. Through coordinated effort we aim to reduce overhead, and hope to capture lessons learned that DOE can apply broadly throughout its field installation structure. We now have a team from across LM/E&E working to identify even greater opportunities for integrating our activities to drive down costs.

Goal #4: To demonstrate tangible results.

We have beaten the timetable for demonstrating results at all our sites and have "put fee on the line" with our performance requirements at INEL and Oak Ridge.

Goal #5: To procure technology development efforts in identifying and overcoming obstacles to progress.

We have made technology investments based on attacking the toughest clean-up problems and our systems engineering and integration capabilities are critical to identifying the major obstacles to progress.

Goal #6: To establish a stronger partnership between the Department and its stakeholders.

We are proud of our efforts to work with regulators, subcontractors and affected communities at all of our sites. We have also adopted an open door policy with respect to our technologies and have invited interested citizens to visit our facilities. There is no substitute for this policy of openness in building public trust in DOE's environmental clean-up efforts.

ENVIRONMENTAL RESTORATION ACTIVITIES UNDER M&O CONTRACTS

Oak Ridge

The Environmental Restoration and Waste Management Activities in Oak Ridge are extremely varied and complex.

The Department of Energy, Oak Ridge Operations, and Lockheed Martin have accomplished much over the past seven years in mitigating risk. Sixty-nine assessments have been completed; 22 interim actions and 47 remedial actions are completed; over 120 acres of land is covered with engineered multi-layer soil, plastic, and membrane covers; 38 acres of surface impoundments have been closed

under RCRA; over 26 miles of asbestos have been removed; over 17,000 PCB capacitors have been disposed; and nearly 300 million kilograms of waste have been permanently and safely disposed. In addition, ground water plumes have been contained at two sites; ground water seeps are collected and treated at 3 sites; nearly 6 billion kilograms of liquid waste water have been treated, including 8 million kilograms of low level radioactive and hazardous mixed waste and 3.5 million kilograms of low level radioactive waste.

In FY'96 we will continue to make significant progress. This year, we will complete 20 remedial actions, demolish 33 structures, complete stabilization actions for 2 DNFSB facilities; treat, store, or dispose of more than 200 million kilograms of ER waste; complete 12 assessments; and safely and compliantly maintain 581 facilities and 1,252 acres of CERCLA/RCRA units. In addition, we will apply 21 demonstrations of enhanced technology to current, pressing environmental problems and will supply waste management support necessary to the critical Defense and Energy Research missions of Oak Ridge, Paducah and Portsmouth.

To continue this progress in the future, Lockheed Martin has proposed to DOE a vision in which legacy hazards will be remediated to acceptable risk level by the year 2010. Essentially, DOE's Environmental Management mission, as defined today in Oak Ridge, will be completed by 2010: disposition of all legacy waste; comprehensive prompt remediation of all three government reservations (Oak Ridge, plus Paducah, Kentucky and Portsmouth, Ohio); and reindustrialization and defederalization of the DOE facility and land now being managed by the DOE Environmental Management program will be completed. This 2010 vision reduces the schedule required for Environmental Management activities by over 50 years with a commensurate reduction in funding activities of $8 billion from the most recent baseline plans.

In order to achieve the 2010 vision, several key activities must be initiated or continued in the FY'97 timeframe. The Oak Ridge Environmental Management Program is complex and has more than 200 individual projects requiring funding in FY'97, far too many to mention in this testimony. I will however, mention a few of the key activities necessary to support the 2010 vision:

- The entire environmental management program must be incentivized
- Technology development must be leveraged to the maximum
- Radioactive metal processing capability must be established
- The Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico must stay on schedule to receive the TRU waste from Oak Ridge
- New tenants from private industry must be attracted to the K-25 and Y-12 sites
- Clean-up targets and institutional controls must be established and agreed to by all regulators and stakeholders that are consistent with the Vision 2010 land use

Intermediate targets supporting the 2010 vision are as follows:

- By the year 2000, over 85% of the 35,000 acre Oak Ridge reservation will be removed from the National Priorities List
- By 1999, pump-and-treat plume containment at Portsmouth, Ohio will be converted to a passive, minimal cost operation
- By the year 2000, the cost of base waste treatment operations will be further reduced by 50%
- The Oak Ridge National Laboratory gunnite tanks, with waste similar to the Hanford tanks, will be remediated by 2002
- All the ground water contamination sources will be controlled by 2005Í

While cost reductions in the Environmental Management budget in Oak Ridge since 1994 have been substantial, remediation activities have generally continued at a steady pace. This is principally due to cost savings and efficiencies initiated by Lockheed Martin, the most notable are those in the incentive contract projects. In those projects, more commercial-like practices have been adopted resulting in greater competition in subcontracting; layers of health, safety, and environmental oversight have been eliminated while maintaining or improving project safety performance; and a systems approach has been utilized to define the project requirements, with configuration management employed throughout the project life. However, reductions beyond the level of funding in FY'96 will seriously jeopardize our ability to continue forward progress in environmental clean-up and elimination of waste legacies. Programs like reindustrialization and material recycle will not be effectively initiated. Disposition of waste currently stored in facilities that are candidates for defederalization will not proceed. Dollars will mainly be used to maintain current risk levels rather than continuing to reduce them.

Idaho National Engineering Laboratory

The INEL is another site facing significant clean-up challenges. As Lockheed Martin Corporation Idaho Technologies President, Mr. John Denson, recently told the Senate Armed Services Committee and the Subcommittee on Strategic Forces, INEL has demonstrated its support of Assistant Secretary Grumbly's strategic goals in four specific areas and will continue to accelerate progress under its performance-based contract. Under this contract, Lockheed Martin committed to improve performance in the areas of environment, safety and health and to accelerate environment cleanup by nine years while reducing costs. We also took on the challenge of strengthening the Laboratory's research and development base, an essential requirement if INEL is to execute the lead roles assigned by DOE.

Under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) milestones, fuel movements from an outdated storage facility to a modern, compliant facility were accomplished ahead of Consent Order Agreements. More than 120 underground storage tanks were removed, replaced or upgraded at cost and two years ahead of schedule. Waste drum movement at the Radioactive

Waste Management Complex has been completed ahead of schedule and under budget by nearly 40%. The decision to pursue commercial incineration of certain low-level waste resulted in savings of over 55%. And the consolidation of decontamination and dismantled activities has netted savings of $2 million. Re-engineering of the requirements baseline through our EM integration effort shaved $400M off the FY'98-FY'04 full-treatment baseline (equivalent to a $7B saving over the lifetime EM budget profile for INEL --- through the year 2035).

I must mention the impact of reduced carryover funding and continued declines in out-year funding. The overarching concern we have about constricted funding has to do with the ability of INEL to live up to its compliance commitments–particularly those laid out in the landmark spent fuel and waste management agreement of October 1995 among the U.S. Navy, the Department of Energy and the State of Idaho. Beyond sending an undesirable message to the Idaho citizens about the prudence of entering into agreements, funding limitations or reductions that would jeopardize meeting the terms of the spent fuel agreement would likely have other serious consequences. These could include, but likely not be limited to, a compromise of the Lockheed Martin Idaho Technologies contract commitment to accelerate the cleanup of the INEL by nine years, a restricted ability to maintain a core mass of critical technical personnel, and an increased challenge to maintaining economic stability in eastern Idaho.

Sandia National Laboratories

Although Sandia National Laboratories (SNL) does not pose the same environmental restoration challenge as do Oak Ridge and INEL, it too has responded responsibly to meeting environmental compliance.

The SNL Environmental Restoration (ER) Project's mission is to assess and remediate approximately 219 legacy hazardous waste sites throughout the SNL complex. The ER Project receives its funding from DOE and is regulated by the Environmental Protection Agency (EPA) and the New Mexico Environment Department (NMED).

In 1994, DOE and Sandia adopted a number of significant changes in management approach in response to criticisms regarding project pace and cost. The response was an Action Plan project agreement that achieved the following: It accelerated the cleanup schedule (end in FY2006 as opposed to FY2012); reduced the total life-cycle cost by $214 million; set out clear, success-oriented responsibilities for both DOE and SNL; established a small set of high-level metrics for performance appraisal; reduced the oversight and administrative burden on the laboratory; and greatly expanded the envelope of acceptable, yet prudent risk.

The strong commitment to change by DOE and SNL is reflected in the accomplishments that have resulted. The FY'95 Action Plan metrics called for completing 19 cleanups and 47 No Further Action (NFA) proposals. Sandia

completed 34 cleanup and 64 NFA proposals. Sandia did not stop there. New ways were sought to achieve even greater efficiencies. New approaches to getting sites cleaned up were either invented or adapted from other successful models. These approaches were negotiated with and agreed to by the regulators. The result was the May 1995 Revised Action Plan This plan has been approved by DOE and has resulted in an almost total restructuring of the ER Project to achieve the following:

- A further reduction in schedule (end in FY2000 as opposed to FY2006) and
- An additional reduction in total life-cycle cost of approximately $145 million.

The reduction of schedule and cost has allowed Sandia to be included on the "Small Site Strategy" list.

PRIVATIZED ENVIRONMENTAL RESTORATION ACTIVITIES

Lockheed Martin Advanced Environmental Systems (LMAES)

In looking for ways to execute ER projects faster and at lower cost, we were reminded of a painful lesson learned by the aerospace industry: the danger of looking at complex projects only in a component-by-component manner. To ensure that proper trade-offs and potential synergies are addressed in project planning and beyond, a truly integrated system-engineering approach is required. This recognition was the basis for our decision to form LMAES. This systems-integration company will implement integration lessons learned throughout the corporation. Our intent is to identify project "show stoppers" and critical barriers at the earliest opportunity and ensure optimum program planning.

With the planned transfer into LMAES of the LESAT division responsible for the Pit-9 project (a buried transuranic- and mixed-waste remediation at the INEL), LMAES will acquire responsibility for this ~$200M fixed-price contract. Pit-9, currently the largest privatized remediation project in DOE, features a Retech plasma-melter system. A three-phase treatment system will treat about 750,000 pounds of buried waste stored at that site. Pit-9 contains waste primarily generated in the 1960s at DOE's Rocky Flats nuclear warhead production plant. (Retech is also building similar units to treat radioactive waste for the Swiss and for defense waste in Germany.)

M4 Environmental

As I mentioned earlier, M4 has the exclusive right to use CEP for processing hazardous, radioactive and mixed wastes in DOE, DoD and USEC markets. CEP is a safe, environmentally sound, source reduction and recycling alternative to traditional waste treatment technologies. It can accept a wide range of physical and chemical waste forms, e.g., soils, sludges, scrap, liquids and gaseous feeds, and recycle them into useful products.

In the case of radioactive wastes, M4 uses a related technology called Quantum-CEP, or Q-CEP. This process dramatically reduces the volume of radioactive wastes by between 30 and 100 to 1 and places the radioactive constituents into a safe, stable form for final disposal. The volume reduction alone holds great promise for substantially reducing DOE's waste management costs. Non-radioactive components in the waste stream can be recycled.

The Retech Plasma Arc Centrifugal Treatment (PACT) system to be acquired by M4, has been shown to be robust and effective in dealing with large volumes of highly contaminated materials. Plasma melting technology involves the use of heat generated by a plasma torch to melt and subsequently vitrify non-volatile waste components, thereby decreasing the waste volume. The PACT process also produces a non-leachable, glass-like substance suitable for landfill disposal. The technology generally requires less waste characterization than some alternatives, thus saving substantial characterization costs.

Current Projects:

M4 is currently working with officials of DOE, DoD and USEC on a number of important environmental remediation and waste management problems. To demonstrate the advantage of the Molten Metal technology in dealing with these problems, M4 is currently operating CEP and Q-CEP systems at its $38 million Technology Center in Oak Ridge, Tennessee. M4 is prepared to implement a privatization approach to plants for government applications. That is, M4 will build the plants using its own capital to meet processing criteria established by the government. Payment would be based on quantities of waste processed under a firm-fixed-price arrangement. Should M4 fail to meet the processing criteria, there would be no cost to the government. Thus, M4 is willing to assume the financial and technical risks usually taken by the government.

USEC: Under its May 1995 agreement with USEC, M4 is beginning to recycle depleted uranium hexafluoride tails using Q-CEP. Tails are produced when uranium isotopes are separated in the gaseous diffusion enrichment process. USEC generates over 15 million kg of tails each year at its Portsmouth, Ohio and Paducah, Kentucky plants. Following the successful completion of a demonstration scheduled for late spring, USEC and M4 will discuss entering into a joint venture agreement to process the tails currently owned by USEC as well as those produced from USEC's operations over the next 10 years. It should also be noted that DOE has over 550 million kg of tails in storage from its prior operation of U.S. enrichment plants.

DOE: At its Oak Ridge Technology Center, M4 has commissioned a commercial Q-CEP reactor designed to process radioactive and mixed wastes. Completed in fewer than five months and capable of processing up to 1 million pounds of waste annually, this facility is processing heterogeneous liquid and solid mixed wastes from DOE, and will process mixed wastes from commercial utilities.

DoD: M4 is proposing to establish regional CEP facilities on or near major DoD facilities (such as Air Logistics Centers) throughout the country to process DoD hazardous wastes. If constructed, these facilities could recycle close to 100% of DoD's hazardous waste, as well as process materials associated with base cleanup. Technical and business discussions are continuing with a number of facilities. The capital investment for these facilities would come from the private sector. The Government would provide a guaranteed waste stream that would be processed on a fixed-price basis at fair market prices. This vision for getting DoD to zero generation of hazardous waste by recycling hazardous waste products, is in keeping with the goals of both the current Administration and the Secretary of Defense for pollution prevention, privatization and joint use initiatives.

In October 1995, M4 responded to the Army's request to industry for alternative technologies to evaluate for use in its Chemical Demilitarization program. Teamed with Battelle Memorial Institute, Bechtel National, Inc. and Fluor Daniel, M4 proposed a privatized approach to processing the chemical agent at two of the three low-volume sites (Aberdeen, MD and Newport, IN). Using CEP, M4 would recycle 100% of the nerve and mustard agents into useful products, such as metal, hydrochloric acid, sulfur and synthesis gas. M4 estimates that it could be processing these agents within 18 months following a contract award and could complete the job for substantially less than the cost of the baseline incineration approach and well within the congressionally mandated 2004 deadline. In our view, M4's approach addresses citizen and regulatory concerns about incineration, minimization of secondary waste and use of a system that can be quickly and economically dismantled and removed.

The Army has tasked the National Research Council of the National Academy of Sciences to review CEP together with two other alternative technologies and evaluate whether any of them are acceptable for processing at the low-volume sites. M4 will test live chemical agent in March and April at a Battelle Memorial Institute surety laboratory in Ohio. A Defense Acquisition Board review in October 1996 will decide whether to proceed with a pilot plant using CEP or another alternative technology.

Private Sector: In the private sector, Molten Metal has launched a number of ventures to deploy CEP. This is important to M4 because the success and acceptance of CEP in the private sector reinforces our confidence in its success and acceptance in the public sector. A Q-CEP unit was commissioned in 1995 for processing radioactively contaminated ion exchange resins generated by the commercial nuclear power industry. Developed jointly with Westinghouse's Scientific Ecology Group, Inc. and built in less than a year, the plant is designed to handle resins with radioactivity levels approximately 20 times higher than competitive methods are reportedly able to process. This robotically operated plant will have the capacity to process over 15 million pounds of resin during its first three years of operation.

HAZWRAP

HAZWRAP was created to provide environmental management and technical services to DOE and other federal agencies. Since 1984, HAZWRAP has evolved as an unique national resource offering expertise spanning the full range of environmental services, thereby providing a total project life-cycle management capability. HAZWRAP draws upon resources and technologies spanning the DOE complex and the private sector (more than 100 environmental technology firms), thereby providing customers with the independent perspective essential to assessing requirements objectively, evaluating technology options and optimizing project implementation strategies. To date, HAZWRAP has saved its customers a total of more than $150M by applying a broad base of capabilities to develop innovative solutions to unique problems. As part of the Lockheed Martin Energy and Environment Sector and the DOE Oak Ridge Complex, HAZWRAP has ready access to vast environmental technology assets such as the Oak Ridge, Idaho, and Sandia National Laboratories.

CONCLUDING REMARKS

Mr. Chairman, I have outlined the various roles that Lockheed Martin Corporation plays for the DOE and DoD environmental restoration programs. I have also reviewed some of the technologies that we are bringing to bear on the problem. The government has an important job to get done, and we are eager to help. We believe that DOE is on the right track and is deserving of Congressional support in its efforts to carry out its environmental remediation mission in a responsible manner. I recognize the desire on the part of the government for greater accountability from its contractors. Lockheed Martin strongly supports contracting approaches that shift greater risks to the contractor in the expectation of lower-cost performance. Private-sector capital investment and fixed-price proposals are logical steps in that direction. However, it is important that we move along that path in measured steps. The Government needs to engage the skills and financial muscle of major corporations in the ER endeavor. However, no company that fits this description would pursue opportunities that involve unquantifiable risks of such magnitude as to be "life threatening". Uncertainties arising from changes in the regulatory environment and the lack of large-scale experience with many of the promising new technologies need to be taken into account. It is important that the government recognize these business risks and select from its tool kit of contracting options the approach which will best suit the specific task.

It is also critically important that development of new ER technologies be pursued in an aggressive manner. The DOE national laboratories, other federally-funded laboratories, universities, and industry all have important complementary roles to play here. What needs to be achieved is an appropriate balance among the various components of this R&D enterprise. We should also be receptive to technology advances achieved off shore. Whatever the source of innovation, the crucial step

occurs in the transition from laboratory development to real-world application. It is here that the government can play a key role in facilitating constructive interactions between public and private sectors.

Finally, Congress can help improve the economic viability of the DOE Environmental Management program by establishing a *de minimus* level for free domestic release of trace contaminated materials. Enormous quantities of metals and other materials could be recovered from decommissioned DOE facilities and recycled into useful products that pose no threat to public health and safety if such legislation were enacted. If "material mining" could be turned into an economically attractive option, the cost of cleaning up many of DOE's facilities would be greatly reduced. In the same vein, it would be also be helpful to establish a framework for future land use that indemnifies private users from any residual DOE legacy risk.

In summary, the Lockheed Martin Energy and Environment Sector looks forward to working with both subcommittees in meeting the challenge of federal environmental restoration problems in an aggressive and cost-effective manner.

De minimus Standards for Free Release of Minimally Contaminated Materials

Background

Regulators and industry have long debated the issue of safe recycling of materials contaminated with low levels of radioactivity. Protecting public health, realizing economic value and avoiding costly disposal are major factors in the discussion. Although the U.S. is one of the most significant users of radioactive materials in the world, articulating and implementing standards relating to *de minimus* quantities of radiation, so that public safety can be assured and valuable materials can be used without further regulation, has been difficult and contentious.

Significant quantities of Department of Energy (DOE) materials contain minute to trace amounts of radioactivity which pose, at worst, minor hazards compared to other often-present constituents such as heavy metals, flammables and other toxics. Although the technology exists for separation of these wastes into potentially usable constituents, because there is no standard for radioactivity that is *de minimus*, wastes with any detectable concentration of radioactivity must either be managed on-site as low-level radioactive or mixed waste or disposed of in a licensed facility. Included in these wastes are large quantities of valuable resources, such as metals, which could, if there were a *de minimus* standard, be recycled and released for use. Because there is no standard to govern their release, however, these materials require costly disposal while DOE and industry procure expensive equivalents. Although some progress has been made over the years on a case-by-case basis, consistent national standards are needed.

Current standards

While attempts to establish a *de minimus* standard are not new, there exist today no generally accepted US standards that would permit recycle and release of slightly contaminated materials. The Nuclear Regulatory Commission (NRC), the Environmental Protection Agency (EPA) and DOE have all taken different approaches on this important and complex issue: EPA, as the authority to establish radioactive protection standards for the general public, DOE, for materials under its jurisdiction, and NRC, for its commercial licensees. The general consensus is that a standard is needed, but the effort has gotten bogged down by jurisdictional disputes and a lack of public education regarding the relative risks and benefits involved.

Perhaps the best known attempt to establish a standard is the NRC's effort several years ago. NRC undertook, and ultimately abandoned, an effort to establish a level of radioactivity that was sufficiently low that it would be Below Regulatory Concern, or BRC. NRC issued guidance on exempting practices and products that are BRC-based on a 1-10 mrem/year maximum individual dose for a range of products including waste disposal, release of lands and structures, consumer products and recycled products. (As a point of reference, a 1 mrem/year dose is equivalent to that received during a 1,500 mile airplane flight, a 5 mrem/year dose is like that received from watching one hour of

television each day, and a 15 mrem/year dose is equal to that received by a person using a natural gas stove in his or her home.)

This policy met with considerable opposition from states, environmental groups and industry, who feared it would result in disposal of low-level waste in sanitary landfills. Some also saw the effort as a states' rights issue - with the federal government preempting the states' authority to regulate the health and safety of their citizens. In 1992, Congress directed NRC to withdraw its policy statements, which it officially did in 1993. Congress also confirmed states' authority to regulate any NRC-exempted disposal or off-site incineration of low-level radioactive wastes. It did not, however, revoke NRC's obligation under the Low Level Radioactive Waste Policy Amendments to develop exemption criteria for radioactive waste streams nor its authority under the Atomic Energy Act to exempt classes of materials from license.

Although there does not exist a general *de minimus* standard for reuse, there do exist other US standards which define "radioactive" substances for other purposes. For example:

- the Department of Transportation defines materials less than 2000 pCi/gm to be non-radioactive for shipping purposes.
- the Nuclear Regulatory Commission defines, for its licenses, materials less than 320 pCi/gm (500 ppm) to be non-radioactive.
- FUSRAP cleanup standards permit soil concentrations of 15 pCi/gm for gardens.

These limits are consistent with notional proposals for a US reuse standard, including those provided by DOE in a 12/3/93 letter to its field offices. In that letter DOE related specific isotopic reuse recommendations to a surface release standard which would yield a 1 mrem/yr dose. Translating the surface standard into a volumetric one results in BRC-type limit of 1-10 pCi/gm.

While the United States has not successfully set *de minimus* standards, other countries have, in a manner consistent with guidance from the International Atomic Energy Agency (IAEA). For example, the United Kingdom, Spain, Germany and Canada have *de minimus* standards of 10 pCi/gm, 200 pCi/gm,10 pCi/gm and 5 mrem/yr, respectively. Slightly contaminated materials, which are *de minimus* in these countries, can therefore be imported from these countries into the United States as products and freely used in commerce. Slightly contaminated materials are even exported from the United States as waste only to be imported back into this country as usable products.

Cost savings of recycling

If a *de minimus* standard existed in the US, significant DOE resources containing very low levels of radioactivity could be processed for recycle using available technologies. For example, on the Oak Ridge Reservation, there are approximately 22 million pounds of nickel, 17 million pounds of aluminum, 835 million pounds of steel and 47 million pounds of copper that could be recycled, generating an estimated $2 billion in finished products.

Decommissioning all the DOE nuclear facilities could generate ten of millions of tons of steel and other metals with a potential market value in the billions of dollars.

Currently, the costs of commercial disposal of this metal as low-level waste can be over $300 per cubic foot. Such disposal is often limited both by cost and the availability of licensed facilities; there are presently only three such commercial facilitates in the U.S. and access to them has been severely restricted at times. Depending on decommissioning and other associated expenses, recycling could save the government substantial costs, which would otherwise be borne by the taxpayer.

Recovered metals are valuable national resources that, if not recycled, would likely be procured by other means. Given the amount of environmental damage that mining causes, recycling alternatives are clearly favored. Recycling metal also uses considerably less energy than producing it from ore. In addition, safe, environmentally-sound recycling furthers U.S. national policies of pollution prevention and waste minimization.

Conclusion

Articulation of an acceptable standard for *de minimus* radioactivity would allow for the recycling and release of valuable materials. Such a standard would save the government significant disposal and procurement costs, and would comport with our national policy of pollution prevention and waste minimization. While a number of agencies have considered the issue over the years, for jurisdictional and public relations reasons, their efforts have not been successful. Congress is in the position to require a rational, well considered approach to address this important issue.

Risk assessment and cost benefit analysis are essential to the effort. The IAEA has provided recommendations and guidance for its members to use in promulgating such standards. These IAEA standards provide a good starting point for articulating a U.S. standard.

M4 Environmental
Privatization

Background
Privatization is a broad topic which includes the use of commercial standards and regulations, putting private funds at risk and linking rewards to performance. Excessive requirements can drive up the costs of jobs by factors of two or more with questionable incremental benefit. Use of uniform standards which have been widely adopted in the commercial world would reduce costs without compromising health and safety. In addition, the private sector can be encouraged to put its own money at risk, provided it is rewarded by commercial benefits, including opportunities for commensurate profits. A mechanism for reclaiming investments if the project is canceled for reasons beyond the contractor's control is also important.

M4's Approach
M4 has developed a privatization approach to plants for government applications under which M4 assumes the financial and technical risks usually taken by the government. According to this plan, M4 would build the plants on or near government sites using its own capital to meet processing criteria established by the government; payment would be based on quantities of waste processed under a pre-determined, fixed-price arrangement. If M4 fails to meet the processing criteria, there would be no cost to the government.

M4 has acted on its approach by building a $38 million, privately-financed, state-of-the-art technology center in Oak Ridge, Tennessee to process hazardous, low-level radioactive and mixed waste. The facility was constructed and fully licensed and permitted to meet health and safety requirements in less than seven months. Demonstration testing has been underway since October 1995, within three months of occupancy, and a full-scale, commercial unit will be commissioned by this summer. This facility was operational quickly because it was located on private property, built with private funds and regulated under commercial standards.

The DOE/DOD Response
Over the last year, M4 has made several proposals to DOE and the Army using this privatization approach. While the initial response by senior, policy level officials was enthusiastic, this enthusiasm has not been translated into action at the implementation level. Apparently, M4's approach is at variance with current procurement regulations and guidelines, which are at least perceived to lack the flexibility to accept privatization initiatives. As a result, none of M4's proposals have been accepted to-date.

Notwithstanding the lack of progress on these proposals, M4 is encouraged by DOE's recent privatization efforts at Idaho and Hanford. Important to the success of these projects, is the use by DOE of only those orders and regulations that are necessary to ensure public health and safety without diminishing the flexibility and competitiveness of the private sector. Clear, definitive regulations combined with a reasonable balance of risk and reward will make privatized contracts like these feasible.

April 3, 1996

STATEMENT OF JAMES L. GALLAGHER, EXECUTIVE VICE PRESIDENT, GOVERNMENT AND ENVIRONMENTAL SERVICES COMPANY, WESTINGHOUSE ELECTRIC CORP.

Mr. GALLAGHER. Thank you, Mr. Chairman, and good afternoon. I am Jim Gallagher, Executive Vice President of Westinghouse Government and Environmental Services Company.

Management of DOE nuclear facilities has been and continues to be a central focus of Westinghouse's business strategy. A lot has changed since I began managing Westinghouse's DOE operations back in 1991. Back then, DOE's former weapons sites were under almost constant attack from you in Congress, from site neighbors, and from the news media.

Much of the criticism was justified. There was too much secrecy, and there was a legitimate concern over safety, inefficiency, and lack of stakeholder participation. But today I can report to you it is different. DOE has lifted the shroud of secrecy that has covered up environmental problems. It is attacking the most urgent environmental risks. Stakeholder involvement has replaced a rigid "decide-announce-defend" strategy. There is much cause for optimism.

DOE and its site contractors have displayed remarkable resiliency through tough times. We have streamlined our organizations, we are spearheading cost reduction programs, and we are keeping our eyes on steady, cost-effective progress, and we are delivering.

Granted, we need to do more, and we need to do it with fewer resources. Yet there is good news to report. I am going to give you just a few examples from Hanford and Savannah River and conclude with some recommendations that will allow us to accomplish much more.

Hanford. Hanford has been hit hard by employee cuts. In 1994 alone, more than 4,000 talented men and women lost their jobs there. We needed to make far-reaching adjustments. DOE and Westinghouse launched a new site strategy that is more akin to a business than a Government operation. We broke up a large lumbering organization into small manageable projects. Each has clearly-defined schedules, milestones, and budgets. And we have signed the most aggressive performance-based contract in the DOE complex.

The strategy is working. Last year, deactivation of the site's old uranium trioxide plant was high on our priority list. We completed that project 4 months early and $800,000 under budget. The work cut yearly monitoring and maintenance costs by 99 percent, from $4 million annually to $40,000.

Another example. Next year, we are going to complete deactivation of Hanford's plutonium and uranium extraction plan ahead of schedule and under budget. That will cut the yearly maintenance bill by another $32 million, from $34 million to $2 million annually.

As this chart shows, just these steps have saved $20 billion in life-cycle cleanup costs at Hanford in just 2 years since we have started this program, and there will be more to come.

Let me turn to Savannah River. The Savannah River site is another excellent example of how well DOE and its contractors are adjusting to shrinking budgets. Since 1992, the site has cut over head costs by more than 30 percent and returned more than $500 million to taxpayers. Savannah River today has more major operat-

ing nuclear facilities than any other DOE site. It also has listed for new and consolidated future missions, so it is vital, especially in light of the continued budget cuts, to preserve the Savannah River site capabilities.

Also, Savannah River site is the home of 34 million gallons of enormously radioactive liquid waste. Just 10 days ago, as Tom Grumbly reported earlier, the men and women of Savannah River began to treat this witches' brew. They put the site's defense waste processing facility into operation. This facility will fuse the liquids into a stable, solid glass, making safe storage possible until a Federal repository is ready.

Also, Westinghouse and DOE will start up a similar but much smaller facility at Westvale, New York later this year.

Throughout these and other operations, DOE sites are the safest in America. Take a look at this chart of the Westinghouse-managed sites. You will note that the DOE complex safety record is enormously better than industry in general, and the Savannah River record is nine times better than the industry average. Our experience shows that safe work is cost-effective work.

Congress can help us going in the right direction. Here are some of my recommendations. First, I urge you to support the President's site cleanup budget request for fiscal year 1997. It is an austere budget and will force us to make tough priority choices. You can help by applying the scalpel fairly and thoughtfully as you consider cleanup funding. Further cuts will only add to long-term monitoring and maintenance costs as reflected by Mr. Grumbly's testimony earlier this afternoon. It makes much more economic sense to eliminate them early.

My second recommendation concerns the Waste Isolation Pilot Plant located in Carlsbad, New Mexico. WIPP will provide our Nation's first and only repository for transuranic waste. All of its regulatory compliance milestones are on schedule. It is ready to open. We all must ensure that it opens on time, and we need to minimize the regulatory hurdles.

You can also support cleanup reforms, reforms that cut unreasonable and conflicting regulatory red tape, reforms that introduce common sense to final land use decisions and reforms that focus on cost-benefit considerations.

Congressman Hastings deserves much credit for being a catalyst in establishing the Speaker's Task Force on Nuclear Cleanup. I urge you to work with DOE and make sure that its recommendations move forward.

Finally, DOE's contract reforms have already shown how Government and industry can work together in the public interest. Westinghouse was one of the first companies to endorse the performance-based contracting, and we have that at all of our sites. Right now, we have excellent momentum going, and with your help, we can accomplish a lot.

Thank you very much.

Mr. BATEMAN. Thank you, Mr. Gallagher, and I thank all the members of the panel.

[The prepared statement of Mr. Gallagher follows:]

Testimony of James L. Gallagher

Executive Vice President

Government and Environmental Services Company

Westinghouse Electric Corporation

March 21, 1996

Before the

Subcommittee on Military Procurement

Subcommittee on Military Readiness

House Committee on National Security

March 21, 1996

Good afternoon Chairman Hunter, Chairman Bateman, Ranking Members Skelton and Sisisky, and distinguished members of the Military Procurement and Military Readiness Subcommittees. I appreciate this opportunity to testify before you today. I'm Jim Gallagher, executive vice president of the Westinghouse Government and Environmental Services Company.

My organization includes 20,000 employees who support the Department of Energy (DOE) missions at the Savannah River Site in South Carolina; the Hanford Site in Washington State; the West Valley Demonstration Project in New York; and the Waste Isolation Pilot Project in New Mexico. We also have a joint venture unit operating as a sub-contractor at Rocky Flats, Colorado.

I would like to start by thanking you for the funding you are currently providing to the DOE sites we serve. I am pleased to be able to report that your investment is paying off.

Today, I would like to focus on the progress Westinghouse and DOE are making in cleaning up these former defense sites. I'll point out some concrete examples of how we are doing more with less...accomplishing more cleanup with less money and fewer people in a shorter time. And I'll suggest some things that could be done to further accelerate cleanup and contain costs in the future.

As you consider the work we are doing to mitigate DOE's high-risk challenges, I believe you will conclude that the taxpayers are, indeed, getting their money's worth.

Refocusing on New Challenges

A lot has changed since I took over management of Westinghouse's DOE operations in 1991. As the Department's mission shifted from defense production to cleanup, the sites changed dramatically. And Westinghouse's role changed, too.

No longer driven by wartime urgencies, the sites found themselves faced with new demands. As federal budgets declined, public demands increased -- demands that we "get on with cleanup," and do it better, safer, faster and cheaper.

And ladies and gentlemen, we are doing just that. Because of our core competencies in nuclear operations and our drive to help DOE operate its sites more like commercial businesses, we have been able to accomplish a great deal over the past three years.

Applying Our Core Competencies

The most significant accomplishment I can report to you is the opening of the nation's first waste vitrification plant. Last week, Secretary O'Leary pushed the button that started the Defense Waste Processing Facility (DWPF) at Savannah River. This cutting edge vitrification plant - the world's largest - will immobilize highly radioactive liquid waste in strong, radiation-absorbing glass logs that can be safely stored for thousands of years.

It took 13 years to make this $2.4 billion plant a reality. At the planned production rate of one canister per day, it will take 25 years to vitrify the 34 million gallons of waste now stored at Savannah River. The facility will employ 750 people and have an annual operating budget of $200 million. The opening of the DWPF represents a huge accomplishment that reflects the teamwork and dedication of DOE and Westinghouse personnel.

At the West Valley facility, a second vitrification plant is nearing completion and scheduled to open this summer. Approximately 14,000 gallons of high-level waste and quantities of clay-like feed material already have been transferred to a high-level waste tank in preparation for start-up of the glass plant. A third vitrification facility is being planned for Hanford.

Other significant accomplishments at Savannah River include restarting the F-Canyon and stabilizing more than 20 percent of the remaining liquid plutonium nitrate solutions to eliminate the potential for the material to leak or cause a criticality.

At the Hanford Site, Westinghouse and our subcontractors have teamed with DOE to create a new business strategy that will lead to savings of more than $20 billion in lifecycle costs of Hanford cleanup. In 1995 alone, savings amounted to $356 million, including $128 million in overhead and administrative cost reductions.

Some other technical accomplishments at Hanford include:

- Ending the 50-year practice of discharging contaminated water to the ground by constructing several effluent treatment facilities and upgrading other plants
- Consolidating special nuclear material for storage and surveillance at a cost savings of $2.5 million.
- Accelerating the spent nuclear fuel schedule by four years, reducing $350 million in project costs.
- Reducing the cost of solid waste disposal by 75 percent over the last five years, making our costs lower than commercial equivalents.
- Reducing the generation of mixed radioactive waste by almost 200,000 gallons each year for an annual savings of $3.6 million.

- Completing defueling of the Fast Flux Test Facility four months ahead of schedule.

Saving $37 million in waste treatment and facility maintenance costs by shipping 186,987 gallons of uranium-contaminated nitric acid from Hanford to England for reuse at Sellafield. This shortened the deactivation schedule by ten months.

Reducing the Mortgage on Old Facilities

Much of the nuclear material we manage is stored in aging facilities that were not designed to today's safety or environmental standards. Nor were they intended for long-term storage. Because of the hazard these old facilities present, DOE must spend millions of dollars each year to monitor, maintain and safeguard them.

Today, we are deactivating these old plants -- decontaminating and decommissioning them - to reduce their expensive monitoring and maintenance costs. This amounts to paying down the principal of our long-term cleanup mortgage.

Last year, we deactivated the Hanford Uranium Tri-Oxide Plant. The project was completed four months early and $800,000 under budget. More importantly, we reduced the annual monitoring and maintenance costs by 99 percent -- from $4 million to $40,000.

When we complete the deactivation of Hanford's Plutonium-Uranium Extraction Facility in 1997, we'll cut the annual mortgage payment by another $32 million.

The deactivation of a Rocky Flats building complex, formerly used as a beryllium foundry and metal fabrication center, will produce a two-year savings of $5.1 million for fiscal years 1996 and 1997.

Improving Our Safety Performance

While we feel good about all of these accomplishments, we feel even better that they were attained while dramatically improving our safety performance.

- Hanford jumped from the bottom 25 percent to the top 25 percent in safety performance among DOE sites during FY 1994 and 1995. The number of lost workdays last year dropped 66 percent from 1994 and 75 percent from 1993.
- Savannah River maintains the best safety record in the DOE complex -- 9.5 million hours without a lost workday due to an on-the-job injury. Employee radiation exposure has been reduced by almost 40 percent, bringing average employee exposures to one-fiftieth of the federal standard. Overall, the site's record is nine times better than the industry average.
- The Waste Isolation Pilot Plant project (WIPP) chalked up more safety awards than any similar installation in the country. It was the first DOE site to receive the Voluntary Protection Program's prestigious "Star" status. It has also been named New Mexico Mine Operator of the Year for seven consecutive years.
- Worker compensation insurance costs have gone down as our safety performance went up. At Hanford alone, $700,000 was saved on our 6-month insurance and workers' compensation bill.

Streamlining Our Organizations

At each of the sites we manage, we have undergone a streamlining process to reduce headcount, cut costs, and produce lean, results-oriented organizations. Savannah River eliminated more than 8,000 jobs. In spite of that painful downsizing effort, we are operating more nuclear facilities at Savannah River today than at any time since the end of the Cold War.

Hanford reduced its workforce by 4,100 and documented savings of $356 million in 1995 alone. We also launched a reengineering process that called for a major rethinking of how work at all levels of the company is done.

According to James Champy, who fathered the reengineering concept, "The Westinghouse Hanford reengineering effort is the largest in scope and scale of any government agency." He goes on to say, "There is more reengineering progress being made at Hanford than there is in private industry." We will be using Hanford as a model for other Westinghouse businesses, and this is one of the areas where Westinghouse GOCOs are leading the way for government.

Another streamlining initiative I'd like to mention concerns the "Savings Through Sharing" program I testified about three years ago. It was designed to produce cost savings by sharing ideas, experience and equipment among the Westinghouse-managed DOE sites.

Today, I can report that "Savings Through Sharing" has been a resounding success. It has saved the taxpayers more than $100 million since 1992. Last year, DOE extended the program to all of its sites through the DOE intranet.

Ongoing Infrastructure Considerations

The Savannah River Site represents a unique challenge as a facility that is involved in both stockpile support and environmental cleanup.

With more major nuclear facilities operating than at any other DOE site, we need to maintain the infrastructure and support to meet the stringent safety, security and operational requirements that are expected of contemporary operating nuclear facilities. In addition, we

have to carefully manage job and budget cuts to make sure we maintain the capability to meet any new or consolidated missions we could be asked to take on in the future.

Right now, Savannah River is identified in more than ten separate processes under the National Environmental Policy Act as a candidate for critical missions that still need to be done. Those missions range from storage and disposition of weapons usable plutonium to the disposition of highly enriched uranium inventories. Particularly in the area of plutonium and tritium handling, Savannah River is the last operating facility with the experience and infrastructure in place to handle many of the tasks that are needed to support post-Cold War stockpile needs or to assist our nation's nonproliferation efforts.

Looking To The Future

I am very proud of the work we have done in the last three years and the employees who made it happen. While we have accomplished a lot, a great deal remains to be done.

First and foremost, we will continue to concentrate on managing the urgent safety risks posed by the underground high-level radioactive waste tanks and the spent nuclear fuel stored at Hanford and Savannah River.

We will accelerate our efforts to reduce the mortgages on the old, contaminated facilities in order to lower or eliminate the monitoring and surveillance costs.

We will search for new ways to improve worker safety and limit exposure of our employees to radiation and chemicals.

We will continue to build on the momentum of our cost-saving initiatives.

One way we are proposing to do this is by taking our "Savings Through Sharing" program a step further. We're calling this new initiative "COPE" -- Consolidated Operations for Program Effectiveness. It would combine functions, such as procurement and data center operations, from multiple sites into one office. COPE will save money by eliminating redundancy, achieving economies of scale, and standardizing best practices.

And we will expand our streamlining effort to include regulations and DOE orders that govern our operations. The Speaker's Task Force on Nuclear Cleanup and Tritium Production contained some sound recommendations for streamlining regulations.

Building on the Task Force Recommendations

I think it is appropriate to recognize Congressman Doc Hastings for being the catalyst behind the establishment of the Task Force. The group's recommendations provide a benchmark for DOE and the contractors. The major thrust of the Task Force's 20 recommendations is to help bring decision-making closer to where the work is done, both on a regulatory and a management level.

Westinghouse has been an active partner in the Department's effort to streamline and localize DOE orders. Many of the recommendations are being implemented now. One of DOE's most successful privatization efforts, to date, is the Savannah River power facilities, which will produce annual savings of $10 million.

Perhaps the most significant recommendation of the Task Force pertains to opening the Waste Isolation Pilot Plant (WIPP) project. WIPP is designed to demonstrate the safe, permanent disposal of radioactive transuranic wastes from the production of nuclear weapons.

WIPP is a world-class site with an array of awards to its credit. The site received DOE's highest quality award, as well as the Westinghouse Chairman's Performance Leadership Award and the New Mexico Quality Award, along with other honors I mentioned previously.

WIPP is ready. All of its regulatory compliance milestones are on schedule, in accordance with the WIPP Disposal Decision Plant. DOE is doing its part. Congress must hold EPA's feet to the fire to ensure this project opens on time. WIPP will provide our nation's first and only repository for the disposal of transuranic waste. Its opening is long over-due.

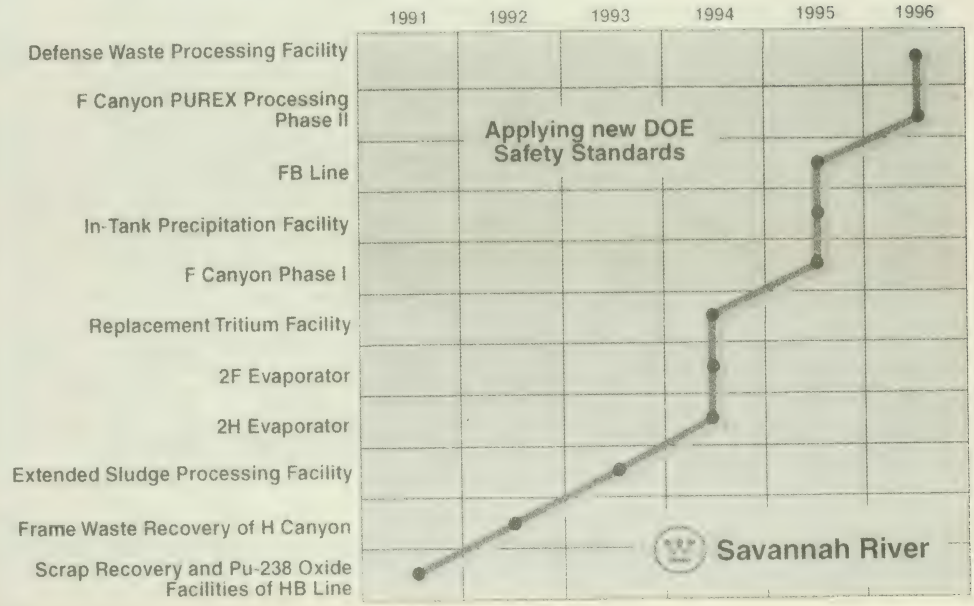
Requesting Support for the President's Budget

In closing, I would like to urge you to support the President's budget request. We believe it will provide the funding DOE needs to carry out its mission.

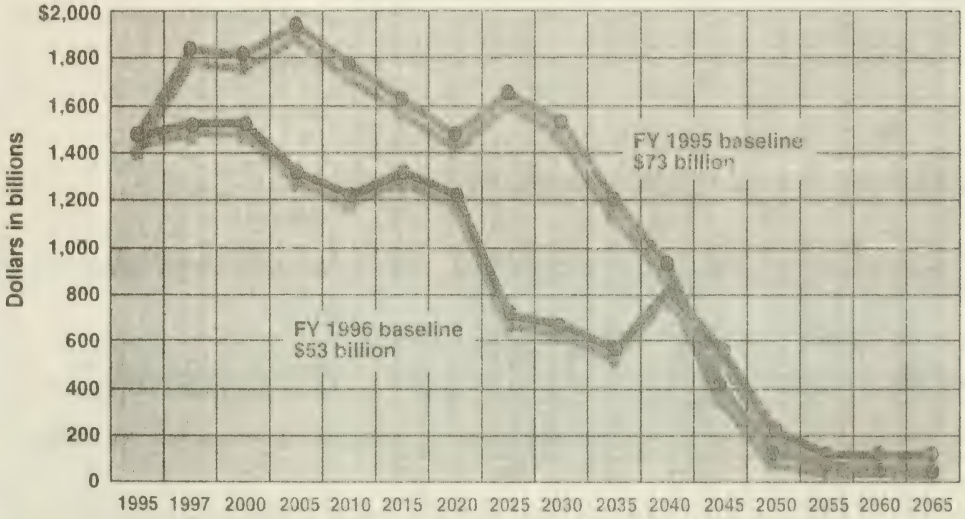
As you continue your deliberations, please keep in mind that the Department cannot sustain further funding cuts without affecting the pace and progress of cleanup. This, in turn, would violate our state compliance agreements and make us vulnerable to fines and law suits. Additional funds, on the other hand, would make it possible for us to further accelerate our efforts to reduce the urgent safety risks and mortgage costs at all DOE sites.

This concludes my testimony. I'll be happy to answer any questions you may have.

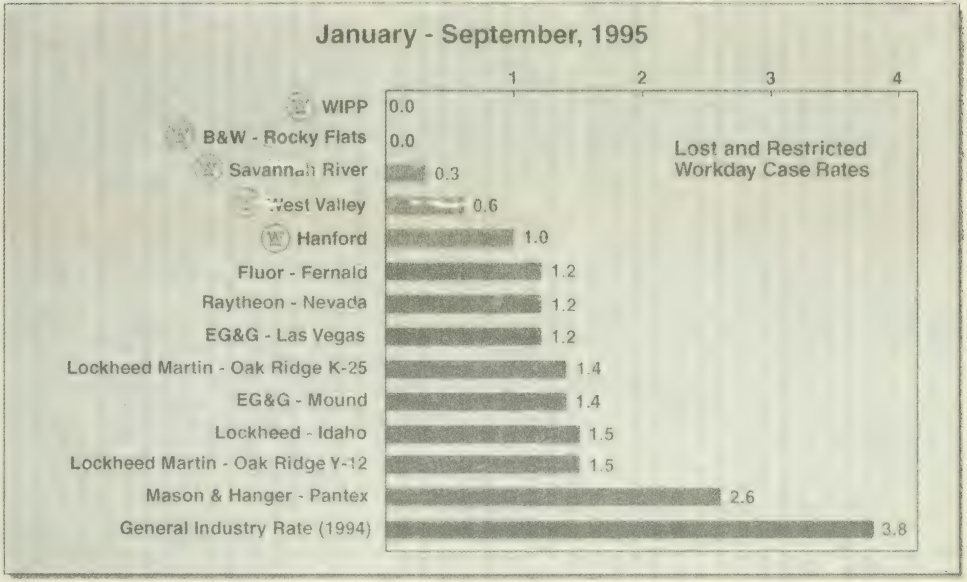
Successful Startup of 11 Major Facilities



Saved $20B in lifecycle costs of Hanford cleanup



Leading the DOE Complex in Safety



Mr. BATEMAN. I would like to indicate my regret at having been called away from the dais for a few minutes, just long enough to have missed Mr. Birkhofer's and Mr. Kahane's testimony. I certainly will be going through your written statements and am sorry that circumstances dictated my having to be absent for a while.

Mr. Dellums, questions?

Mr. DELLUMS. Thank you, Mr. Chairman.

Several of you mentioned in your prepared remarks that the uncertainty and instability in the environmental funding creates challenges for you out there and complicates the challenges for you.

You, Mr. Birkhofer, very specifically in your opening remarks addressed the issue of stability. My question is (a) why is funding stability important and (b) how is the cleanup process facilitated by stabilizing or relatively constant year-to-year dollars in this area?

Mr. BIRKHOFER. Mr. Dellums, stability is important in our business because we have the mission as contractors of amassing the engineering, scientific and construction-related capacity to take on these cleanup challenges.

If we have a steady state in funding, that will cause our DOE and DOD customers to be able to plan effectively over the long term and guide our capacity management so that we have the right personnel in the right place at the right time in the right configuration to do the work.

And I do not want to demean the top-line funding; that obviously is important, and I agree with the characterization of austerity. But what is critical right now is that we establish a steady state in funding so that in 1997 and in the outyears, we know what we are working with, because as these programs in DOD and DOE move to more capital construction, we can be prepared to commit capacity for the long term, for these long-duration assignments; but the only way we are going to do that with economy and efficiency is if we have that kind of stability.

I hope that responds to your question.

Mr. DELLUMS. It certainly does.

With your permission, Mr. Chairman, I have one other question.

If I understood the latter part of your comments—and I just made a brief note—while there appears to be some criticism from some quarters that too much money is spent on studies and investigation, as I understood you, you were saying that that is something that needs to be watched, and a kneejerk response should not be made to that because the extent to which there is efficient use of dollars on the front end, with appropriate studies and investigation, there are then savings on the back end of cleanup, if I heard you correctly, and if I did not, I would like you to explain.

Mr. BIRKHOFER. Sir, you heard it quite correctly; I could not have said it better.

Mr. DELLUMS. Then, let me move to Mr. Kahane. The young woman who was assisting in your presentation used to work for us. With respect to Attachment D—and it was very complicated—but it seems to me you were saying something very clear and very straightforward in a funding proposal. Maybe it would be beneficial to the committee if you would just explain to everybody what the lines mean and lay your proposal out very clearly.

Mr. KAHANE. Thank you, Mr. Dellums.

What we are talking about is taking a site that has been operating in an operations mode and converting it to a project. As Mr. Birkhofer said, stable funding is going to be very important to that, and life-cycle costs are going to be very important. And as Mr. Grumbly said earlier, time in fact is the biggest factor that affects risk and cost.

What we have provided here in this set of graphs are a number of scenarios that provide a perspective from a budget point of view of how quickly we can close the site. The more money we have available now, the quicker we can close the site, and the lower the life-cycle cost of that site would be.

On the other hand, what we are showing with the bottom line is a situation where funding essentially continues at what we will call a de minimis level, $400 million a year, which really barely covers the lights, keeping the tanks watched, the plutonium watched and, importantly, meeting our regulatory compliance requirements.

Keep in mind that with time, especially with the plutonium, we are dealing with 20-year-old control systems that are going to need more and more attention, so risk does go up, and the maintenance costs in fact will go up, offsetting savings in other areas.

Mr. DELLUMS. Thank you very much.

Finally, Mr. Chairman, I too would appreciate amplification—I read the gentleman's opening statement—regarding mining and recycling; that seems to be a very interesting approach, and I would appreciate a copy of whatever the gentleman said.

Mr. BATEMAN. I would hope that we would get that, and it would expedite it if you could send it not only directly to me, but directly to Mr. Dellums as well.

Mr. NARATH. We will do that.

Mr. DELLUMS. Thank you for your generosity. I yield back, Mr. Chairman.

Mr. BATEMAN. Mr. Hastings.

Mr. HASTINGS. Thank you, Mr. Chairman. I have just a couple of questions.

Dr. Narath, you mentioned in your statement, rather specifically, that there is a perception that accomplishments are not being made, and that we ought not to take the Department too much to task; but on the other hand, we do have a responsibility to see that taxpayers' dollars are spent well.

And then all of you at least implied, and some said specifically, that part of the reason for the success that you have all pointed out in part is because of the performance-based contracts. You mentioned that, Mr. Gallagher, and also Mr. Nemec.

The question I have is this. This is the Department of Energy, and they of course have the right under statute to do the performance-based contracts. Future Departments may decide they do not want to do that and go back to an old model. My question is do you think it would be a good idea for this Congress to codify that cleanup on these wastes ought to be done with performance-based contracts? Let's start with you, Mr. Narath, and anybody else who would like to say anything, please do.

Mr. NARATH. I prefer to do the right thing without legislative mandate whenever possible. I just wonder if it would not be more

reasonable to monitor what DOE is doing. I think it is clearly on the right path. It has put performance-based contracts out in many different varieties. I do not know of any cleanup activity today that is not incentivized in some significant way, and maybe with the right kind of oversight and the right kind of encouragement, we will not need a legislative mandate. But I confess that I am not an expert on that subject.

Mr. HASTINGS. Would anybody else like to respond?

Mr. Nemec.

Mr. NEMEC. I think codifying performance-based contracting would probably be counterproductive, only because it is an evolutionary process. You will find that some of the performance-based contracts of 2 years ago have been surpassed by better ways of doing it which bring more savings to the Government and to DOE. So I would hate to lock it in time. I think we have to let it evolve and continue to encourage it.

Mr. HASTINGS. What I am asking about is codifying the concept of performance-based, not the contract itself.

Mr. NEMEC. I understand; as long as it did not put restrictions on creativity, because in many cases, I think we will move from performance-based to incentivized contracts to target price contracts, and we are trying to move to that on parts of our work, so we have to have those options open to us.

Mr. HASTINGS. Go ahead.

Mr. NARATH. Also, keep in mind that there are some real opportunities by way of privatization, and if you move in the direction that you suggest, just make certain that it does not discourage or make more difficult or in any way impede the move toward privatization of some of the cleanup work.

Mr. GALLAGHER. Congressman Hastings, I would echo my fellow panelists. At this point in time, I think the initial contract reform efforts have been quite successful coming out of the box. I think it is still in the early stages and is something that we need to work and, as Joe Nemec mentioned, is still in the evolutionary stage. So I would suggest we continue to watch it, and hopefully, it will continue to improve, and we will get results, because performance-based incentive contracting provides the incentives for a win for the taxpayer, a win for the Congress, and a win for the contractors.

Mr. KAHANE. If I could just add—I will not repeat what the other gentlemen have said because I wholly subscribe to it—the benefit of performance-based contracting is in fact the ability to reward objective measurement. Let us keep in mind that there is some merit to subjective measurement, in other words, on the process side, and I think we need to allow the Department some flexibility in doing that aside from I think the excellent point on the evolution.

Mr. BIRKHOFER. Mr. Hastings, just one last comment. What I find interesting about the performance-based contracting evolution at DOE is that it really proceeded almost before the spate of acquisition reform legislation that we have seen in the last couple of years. From my experience, it has gone forward effectively because of a combination of stakeholder and departmental interest working together creatively without benefit of any statute or any requirement. And I would prefer to see that process just flow on.

Mr. HASTINGS. I have a question for Mr. Gallagher. I know that Westinghouse at Hanford has been under a great deal of pressure because of high overhead costs. That is perceived or mentioned as people pushing paper and so forth.

What exactly have you done at Hanford to address that?

Mr. GALLAGHER. In fiscal year 1995, Congressman, we have reduced our overhead costs, our general administrative costs, by $128 million. That was part of an over $300 million savings at the site. This is part of our billion-dollar savings program that we have ongoing at Hanford.

One of the things that we have done, for example, in addressing the most urgent risks, the K-basins, which you are quite familiar with—there are 2,100 tons of spent fuel over there, which you talked about earlier—we have accelerated that program 4 years from its original conception and are going to save $350 million for the taxpayers.

And right across the board, as I mentioned in my testimony, at Hanford and all of these sites, I think it has been justifiably correct that Congress for many years has said, We are spending all this money on the DOE cleanup, and all we are doing is pushing paper, and nothing is getting done.

In the transition from the cold war to where we are today in the cleanup, a number of things happened that were quite complex. For example, in the early nineties, a number of these facilities that have high mortgage costs were in an undecided mode—shut them down, start them back up in case we need them. We had them in what we call "warm standby." And now that we have decided that we do not need these facilities anymore, just like out at Purex, we are able to go from $34 million in annual costs for maintenance and monitoring when we complete that project next year to $2 million a year—a significant savings. And that savings can be used to reduce the mortgage at other facilities. So we are getting a snowball effect in terms of productivity.

So the momentum, as I mentioned in my testimony, is really beginning to occur in these programs.

Mr. HASTINGS. I see my time is up. Thank you, Mr. Chairman.

Mr. BATEMAN. Thank you, Mr. Hastings.

Mr. Talent.

Mr. TALENT. Thank you, Mr. Chairman. I have just one question I want to ask, but I did want to say that Mr. Pickett's frustration with this program, I can really understand it, and it reminded me a little bit of a joke.

It was in the old days in the Soviet Union, and the Kamizar was talking with the local head of agricultural production, and he said, "Well, Comrade, how are we doing on potatoes?"

And he said, "Oh, potatoes, we are doing fantastic in potatoes. If you stack one on top of the another, all the potatoes we have produced, why, they would reach up to the foot of God."

And the Kamizar said, "That is very good, Comrade, but of course, there is no God."

And he said, "Well, that is okay, Kamizar, because there are no potatoes, either."

It seems like for so long with this program, we just spent and spent, and so little was done. And I understand your view, which

I certainly accept, that a lot of good changes are being made. I thought maybe we put the two secretaries under a lot of pressure, and may have been a little bit unfair, because they seem to be doing a lot. But let me just ask a specific question, and any of you can take it up, and it is my only question.

I do not know that we are going to get Superfund reform this year. What could we do that would be within the prerogative of this committee that would be responsible in the nature of Superfund-like reforms that would be helpful to you all in making dollars go farther, again in a responsible way?

Mr. GALLAGHER. I will just make one quick comment. As I mentioned in my testimony, I think Doc's task force and some of the recommendations that they made could be implemented without legislation. Just getting the philosophy of a more graded approach to cleanup, avoiding the zero risk mentality and implementing the various regulations could expedite the cleanups and do it cheaper and save money for the taxpayers without increasing the risk.

Mr. KAHANE. I would say that to the extent you can eliminate regulatory overlap, single regulatory contacts, avoid the fence-to-fence mentality, that could go a long way.

Mr. HASTINGS. Congress should bite the bullet and give one agency responsibility for this, and understand that mistakes will be made, but you pay a price of having too many watchdogs looking over too many shoulders; right?

Mr. KAHANE. Yes.

Mr. NARATH. Yes.

Mr. GALLAGHER. Correct.

Mr. BIRKHOFER. Congressman, I echo what Mr. Kahane has said, and I would also suggest that we heard a lot earlier today about property transfer authority; that is another area where you all could act and move at least these uncontaminated parcels that have commercial value back into reindustrialization or whatever we are going to do with them.

Mr. TALENT. OK. I thank you, Mr. Chairman.

Mr. BATEMAN. It appears that—Mr. Dellums, do you have any further questions?

Mr. DELLUMS. No, I was going to raise a question with respect to proposed Superfund changes, but the gentleman, through another door, elicited the same response, Mr. Chairman, so that is all right.

Mr. BATEMAN. To the extent you do not deal with it in your prepared statements, if any of you have any suggestions that you would like to submit to the committee post-hearing, after this hearing, we would be very, very much interested in having them, especially as they relate to what we can do to make it simpler, easier, more expeditious and more economical to get the things done that we all agree must be done. So we would appreciate any further thoughts you want to communicate to us on that subject in particular.

Thank you all very much, gentlemen. We do appreciate your time and your coming and sharing your thoughts with us.

With that, we will ask the fourth and concluding panel to come forward, and while they are doing so, thank them

very much for their indulgence. We are sorry we made it into a very long afternoon for you.

The fourth panel consists of the honorable Dan Miller, first assistant attorney general of the State of Colorado; Dr. Ronald W. Cochran, Laboratory Executive Officer, Lawrence Livermore National Laboratory; Mr. Edwin Clark, president of Clean Sites, Inc.; and Maureen Eldredge, Program Director, Military Production Network.

We welcome and thank each of you for being present, and if you are ready to proceed, we will call on Mr. Miller.

STATEMENT OF DANIEL S. MILLER, FIRST ASSISTANT ATTORNEY GENERAL, STATE OF COLORADO

Mr. MILLER. Thank you, Mr. Chairman and members of the committee. I am a first assistant attorney general for the State of Colorado. For the last 9 years, my personal caseload has included the Department of Energy's Rocky Flats plant.

Last summer, a task force of attorneys general and environmental program directors from several States hosting DOE facilities endorsed a set of recommendations for improving cleanups at Department of Energy facilities. My testimony will summarize three of the key findings of that group. The recommendations themselves are attached to my written testimony.

The first point is that most of the DOE environmental budget is needed simply to maintain former weapons complex facilities that formerly were funded by the Office of Defense Programs. Most of the funding in the DOE budget does not do anything to reduce environmental risks or financial liabilities.

The second and related point is that spending relatively more money in the short term to treat wastes, stabilize plutonium and other special nuclear material, and to reduce the weapons complex mortgage will significantly reduce the total cost of cleaning up and closing down the old weapons complex.

The final point is that at-large Department of Energy facilities environmental cleanup is closely related to other environmental issues. This calls for an integrated environmental regulatory approach.

I will be recommending some specific amendments to CERCLA that will help to provide this better integrated approach.

Regarding the first point, environmental cleanup is only a small part of the DOE environmental program. This program also pays to maintain a significant portion of the aging weapons complex, including facilities at Hanford, Savannah River, Idaho National Engineering Laboratory, and Rocky Flats. Included in these activities are providing safeguards and security for approximately 25 tons of plutonium and large amounts of highly enriched uranium.

Even though much of the old weapons complex is no longer needed, for reasons of security and safety, we must continue to maintain it. As much as three-fourths of DOE's environmental budget—some $4.5 to $5 billion—is currently spent keeping the lights on, the security and safeguards in place, and providing monitoring and surveillance for wastes and materials. Though vital, these activities do nothing to reduce risks from unstable plutonium, treat wastes so that they can be disposed, or enable us to shut down these sur-

plus facilities. All they do is keep the current situation from becoming significantly worse, and in some cases may not even accomplish that.

This leads to the second point. Perhaps the most significant factor affecting the total costs of cleaning up and closing down the weapons complex is the pace at which we clean it up and close it down. To give just one example, the sooner we stabilize the unstable plutonium at Rocky Flats, which is about 12 tons total—the sooner we can consolidate its storage from eight buildings into one, the sooner we can slash the $130 million Rocky Flats spends annually for plutonium safeguards and security.

Investing more money over the next few years to stabilize plutonium, treat wastes, and decommission buildings will pay significant dividends in the near term by allowing us to significantly reduce the weapons complex mortgage.

On the other hand, if the overall level of spending for the DOE environmental program remains close to the level needed just to maintain the status quo, we are going to continue to spend that amount of money annually indefinitely, without making significant progress toward reducing risks or liabilities. I think this point was graphically made in the chart that Mr. Kahane presented earlier today.

The third point is that environmental issues at DOE facilities are very complex and very interrelated, so they would benefit from an integrated environmental regulatory approach. We recommend two changes to CERCLA to help achieve this integrated approach.

First, to reduce duplicative regulation created by the overlap of CERCLA and State hazardous waste cleanup authorities, CERCLA should be amended to provide for streamlined delegation of EPA's authority to qualified States, or to allow cleanups to proceed under State hazardous waste law corrective action in lieu of CERCLA.

Second, CERCLA should be amended to make clear that integrating State environmental laws into the cleanup agreements that are required at most DOE facilities under CERCLA section 120 does not in any way impair the State's authority to enforce those laws. Currently, there is a problem in negotiating these agreements, because to achieve a truly integrated approach, it makes sense to put air quality requirements, hazardous waste management requirements, water quality requirements into a single agreement along with the cleanup requirements. But there is a legal issue—once those State law requirements have been put into the cleanup agreement under CERCLA, there is a real question as to whether the State would have the ability to enforce them, and there is a specific amendment that would take care of that particular problem.

Thank you for the opportunity to appear here today. I would be glad to answer any questions you may have.

Mr. BATEMAN. Thank you very much, Mr. Miller.

Let us proceed to Dr. Cochran, please.

[The prepared statement of Mr. Miller follows:]

TESTIMONY OF DANIEL S. MILLER

FIRST ASSISTANT ATTORNEY GENERAL

STATE OF COLORADO

BEFORE THE READINESS AND PROCUREMENT SUBCOMMITTEES

OF THE NATIONAL SECURITY COMMITTEE

MARCH 21, 1996

Good afternoon, Mr. chairmen and members of the committee. My name is Dan Miller. I am a First Assistant Attorney General for the State of Colorado. For the past nine years, my personal caseload has included the Department of Energy's Rocky Flats Plant.

Last summer, a task force of Attorneys General and environmental program directors from several DOE states endorsed a set of recommendations for improving DOE's environmental program. My testimony will summarize three of the key findings and recommendations of this group. The recommendations themselves, and a related task force report, are attached to my written testimony.

-- First, most of the DOE environmental budget is needed simply to maintain the status quo at former weapons complex facilities, and does not reduce environmental risks or financial liabilities;

-- Second, spending more money in the short term to treat wastes, stabilize plutonium, and reduce the weapons

complex mortgage, will significantly reduce the total cost of cleaning up and closing down the old weapons complex;

-- Third, at large DOE facilities, environmental cleanup is closely related to other environmental issues. This calls for an integrated environmental regulatory approach. We recommend some specific amendments to CERCLA to provide better integration.

Regarding the first point, environmental cleanup is only a small part of the DOE environmental program. This program also pays to maintain a significant portion of the aging weapons complex, including Hanford, Savannah River, INEL and Rocky Flats. This includes providing safeguards and security for 25 tons of plutonium and large amounts of highly enriched uranium.

Even though much of the old weapons complex is no longer needed, for reasons of security and safety, we must continue to maintain it. As much as three fourths of DOE's environmental budget -- some $4.5 to 5 billion -- is spent keeping the lights on, the security and safeguards in place, and providing monitoring and surveillance for wastes and materials. Though vital, these activities do nothing to reduce risks from unstable plutonium, treat wastes so they can be disposed, or enable us to shut down these surplus facilities. All they do is keep the current

situation from becoming significantly worse.

This leads to the second point: the most significant factor affecting total cost of cleaning up and closing down the weapons complex is the pace at which we clean it up and close it down. To give just one example, the sooner we stabilize the unstable plutonium at Rocky Flats, the sooner we can consolidate its storage from eight buildings into one. The sooner we do that, the sooner we can slash the $130 million Rocky Flats spends annually for plutonium safeguards and security.

Investing more money over the next few years to stabilize plutonium, treat wastes, and decommission buildings will pay significant dividends in the near term by allowing us to significantly reduce the weapons complex mortgage. On the other hand, if the overall level of spending for the DOE environmental program remains close to the level needed just to maintain the status quo, we will continue to spend that amount of money each year indefinitely without making significant progress toward reducing risks or liabilities.

The third point is that environmental issues at DOE facilities are complex and interrelated, so they would benefit from an integrated environmental regulatory approach. We recommend two changes to CERCLA to help achieve this integrated approach.

First, to reduce duplicative regulation created by the overlap of CERCLA and RCRA cleanup authorities, CERCLA should be amended to provide for streamlined delegation of EPA's authority to qualified states, or by allowing cleanups to proceed under RCRA corrective action in lieu of CERCLA.

Second, CERCLA should be amended to make clear that integrating state environmental laws into CERCLA § 120 agreements, which are required for cleanup of federal facilities on the National Priorities List, does not in any way impair the state's authority to enforce those laws.

Thank you for the opportunity to appear here today. I will be glad to answer any questions you may have.

STATE TASKFORCE REPORT[1]

ENVIRONMENTAL OBLIGATIONS AT FEDERAL FACILITIES AND AN ANALYSIS OF THE ENVIRONMENTAL MANAGEMENT PROGRAM OF THE DEPARTMENT OF ENERGY

June 2, 1995
revised July 31, 1995

INTRODUCTION

Federal facilities pose some of the most pressing environmental problems facing the nation. These problems are the result of decades of neglect and inadequate environmental management. In many instances, these problems have been hidden behind the cloak of national security, while federal agencies asserted immunity from environmental regulations. They involve staggering quantities of hazardous, radioactive, and mixed wastes and materials and extensive contamination of water and soil. Most importantly, these problems pose substantial threats to the environment, safety and well-being of the public.

Important steps have been taken to begin the arduous and complex job of addressing these problems. In 1992, Congress passed the Federal Facility Compliance Act (FFCA). By clarifying the waiver of federal sovereign immunity to the Resource Conservation and Recovery Act and state hazardous waste laws, the FFCA ended decades of ineffective federal "self regulation" for hazardous waste, making federal facilities subject to the same independent regulatory oversight as private and non-federal entities. Under strong pressure from state regulators, federal facilities have entered into cleanup and compliance agreements with the states and EPA. Waste management and cleanup programs have been put in place and are yielding results. The public has been brought into the decision making processes, and the adversarial relationships between citizens and regulators, on the one hand, and federal facilities, on the other, are beginning to be replaced by an emerging, but fragile partnership. Parties who might once have been sitting on opposite sides of a courtroom are now sitting around tables trying to solve problems together.

Over the past six years, funding for federal facility environmental activities has increased significantly, particularly for the Department of Energy (DOE). The scope of the DOE environmental program has grown substantially beyond "traditional" environmental compliance and cleanup. This program now is responsible for safeguarding 25 metric tons of plutonium (enough for thousands of warheads) and for managing thousands of former weapons production facilities.

[1] Principal authors include: Don Miller, First Assistant Attorney General for the State of Colorado; Jacqueline H. Berardini, Director, Environmental Integration, Colorado Department of Public Health and Environment; Laura Perrault, Assistant Attorney General for the State of Colorado; Jay Manning, Senior Assistant Attorney General for the State of Washington; Jeff Breckel, Interstate Liaison, Washington Department of Ecology; Jim Payne, Assistant Attorney General for the State of Ohio; Graham Mitchell, Chief, Office of Federal Facilities Oversight; Tom Winston, Chief, Southwest District Office, Ohio EPA. Representatives from the environmental agencies and attorneys general of several states also participated in review of this document.

In fact, only one-fourth of the DOE environmental program is devoted to cleaning up environmental contamination from the nuclear weapons complex. This added scope accounts for much of the budget growth in the Environmental Management program since 1991.

Recently, however, Congress has become increasingly concerned over the rising costs of cleanup and the apparent lack of progress in cleanup effort at federal facilities, particularly DOE sites. A number of reports have been issued which are critical of DOE's management of the cleanup program and have challenged the efficacy of the states' regulatory role at federal facilities. States have been characterized as inflexible and insensitive to the cumulative cost implications of the cleanup agreements. Cleanup agreements and schedules have been called unrealistic. These reports have resulted in proposals in Congress to dramatically reduce funding for environmental programs and to reduce or eliminate state regulatory authority, making federal facilities once again self-regulating. While these criticisms have focused on cleanup efforts at DOE facilities, such as the Hanford Site in Washington, they pose serious implications for environmental compliance and cleanup efforts at all federal facilities. Nevertheless, because attention seems to be focused upon the environmental programs of the Department of Energy, this analysis is largely directed to the taskforce states' experience with DOE issues.

In their analysis of these criticisms, and in assessing their own observations of environmental conditions at federal facilities generally, the taskforce formulated a set of nine principles concerning environmental programs at federal facilities. It is hoped that these principles will be useful guides during discussions about reform of federal programs and, particularly, the Environmental Management Program of the Department of Energy.

1. **State role.** Under our federal system of government, states have primary responsibility to protect the environment, safety and well-being of their citizens. Any legislative reforms should recognize this principle.

2. **Federal role.** The federal government must honor its obligation to the citizens of this country to cleanup its facilities, manage its wastes properly, and comply with environmental laws to the same extent as private parties.

3. **Independent state regulatory oversight** is necessary to achieve effective environmental results at federal facilities.

4. **Negotiated compliance agreements** and regulatory orders provide an **effective framework** for establishing priorities and reconciling competing interests. Agreements can be adapted to changed circumstances by renegotiating commitments, considering risk, technical, fiscal, and other appropriate factors.

5. **Efficiency.** While maintaining necessary safety margins and public health protection, greater efficiency must be achieved in state and federal environmental programs, especially in light of current and projected budget constraints.

6. **Long-term commitments.** A sustained and sustainable commitment by this nation is required in order to assemble and maintain the resources and wise management necessary to address environmental needs at federal facilities. In establishing this commitment, policy makers should consider that if important work is deferred, conditions will deteriorate and contamination will spread, increasing risks and the costs to address them.

7. Congress, federal agencies, states and the public must work together to establish **treatment, long-term storage, and disposal sites** for radioactive wastes and surplus fissile materials in an equitable manner.

8. **Integrated planning and response** to all environmental obligations should be encouraged, in order to address all significant site priorities in a sensible, efficient manner.

9. **Public participation.** The adverse impacts of federal facilities have fallen most heavily on their neighbors. Affected public stakeholders must have meaningful involvement in federal facility environmental decisions.

Turning more specifically to the DOE cleanup program, the taskforce states disagree with some criticisms while agreeing with others. We disagree with assertions that states have imposed unrealistic requirements in their cleanup agreements with DOE, are inflexible, and unconcerned about costs. We also disagree that the interagency cleanup and compliance agreements are too unwieldy to be effective. Current cleanup agreements embody realistic requirements that are the result of freely conducted negotiations between individual states and DOE, typically with extensive involvement and review by DOE headquarters. The schedules in these agreements are no more stringent than schedules for comparable activities at private sites on the NPL. In addition, states routinely extend schedules for good cause, and have shown a willingness to renegotiate entire agreements to reflect new information, changing priorities, or to consider fiscal constraints. Although we have some ideas about how the implementation of the agreements can be improved, we firmly believe that agreements are the best way of developing an effective approach to resolving environmental problems at complex sites like DOE's.

Nor are states unconcerned about costs. To the contrary, states have a very strong interest in using environmental dollars wisely; states and municipalities are intimately familiar with the scope of DOE's environmental problems and the reality of federal fiscal constraints. The record is replete with examples of state-initiated or state-assisted actions to help reduce DOE's environmental costs, including flexible interpretations of regulatory requirements, cooperative efforts to develop solutions to problems, and other forms of technical assistance. Additionally, compliance with state laws, particularly laws governing hazardous waste management, actually saves money in the long run by encouraging sound management practices, preventing accidents, and avoiding future contamination.

On the other hand, the taskforce states agree with some of the remaining criticisms of the DOE cleanup program. In particular, we agree that DOE has not managed this program well. DOE has not provided adequate direction to, or oversight of, its contractors; DOE has placed too much

reliance on weapons contractors inexperienced in environmental matters; and DOE's use of "cost plus" contracting mechanisms that reward inefficiency have led to very slow progress. DOE has acknowledged these problems, and has taken measures to correct them. Whether DOE's reforms will adequately address the problems remains to be seen.

We also agree that the statutory framework governing cleanup at federal facilities is not effective. It is plagued by overlapping authorities and burdensome requirements. The overlap of RCRA and CERCLA authorities often results in two regulators (EPA and the state) overseeing a single activity. Moreover, some requirements -- notably, some of the DOE orders -- add little or no value, and should be eliminated; others simply need some fine tuning to allow greater flexibility to do the sensible thing. Sometimes, the fault lies not in the regulation, but in DOE's overly conservative interpretation of what the regulation means. Other statutory impediments exist to developing coordinated, integrated approaches to the complex, interrelated environmental management problems that exist at the large DOE sites.

The states are committed to the protection of public health and the environment through the most effective, efficient, and timely cleanup of federal facilities possible. To this end, the states will continue to be flexible, creative, and results oriented in working with federal agencies to find the best solutions to their environmental problems. The states will continue to work to eliminate or streamline regulatory processes which are redundant or needlessly impede progress.

The states are prepared to work with Congress and federal agencies to develop an efficient and effective program to address the immediate and long-term threats posed by hazardous and radioactive wastes at federal facilities. We recommend the following reforms be adopted and implemented to respond to the deficiencies noted above:

- **Increase DOE's efficiency** by mandating additional contract reforms, monitoring DOE's progress in implementing reforms, increasing regulator involvement in project planning, and making reduction of the "mortgage costs" of maintaining former weapons complex sites a high priority;

- **Create an effective statutory and regulatory framework** by allowing qualified states to oversee DOE cleanups under CERCLA or similar state laws, overhauling the system of DOE "orders," clarifying the role that anticipated future land uses play in remedy selection, allowing use of an integrated approach to addressing environmental management problems without impairing state enforcement authority, and clarifying the scope of requirements that may be included in federal facility agreements so that all environmental obligations are identified, prioritized, and addressed appropriately;

- **Improve priority setting processes** to reflect the priorities of affected persons and organizations, and to ensure that the concerns of state regulators, federal agencies, and those who are most affected by the sites are reflected in DOE decisions to allocate any funding shortfalls.

In considering the criticisms, problems, and recommendations presented here, the taskforce explicitly recognizes that the Federal Government's environmental obligations will require a great commitment of time and resources to resolve. Retreating from that commitment will not make the problems go away, it will only postpone the time when we must address them, most likely at greater cost. The taskforce concludes that a framework should be established by which sound management of DOE's Environmental Management program will become standard practice, and environmental results will be achieved. Finally, the states have been, and can be, valuable allies in these long-term environmental efforts by providing independent oversight in their regulatory capacity, as well as by sharing their expertise to find creative, innovative, cost-effective solutions.

The reader may find a description of DOE's environmental management program useful. Section I presents a brief description of its principal components. Section II contains the taskforce response to criticisms of the Environmental Management program and our recommendations for reform.

I. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT PROGRAM AND BUDGET OF THE DEPARTMENT OF ENERGY

DOE'S Environmental Management (EM) Program is often thought of as an "environmental cleanup" program. But the EM program is really a lot more than just cleanup. EM must solve the many problems created by 5 decades of nuclear weapons production, including:

Safeguarding and Dispositioning Special Nuclear Materials;

Safely Storing and Treating Radioactive and Mixed (both Radioactive and Hazardous) Wastes;

Decontaminating and Decommissioning the Huge Industrial Facilities (The "Weapons Complex") That Developed and Built Our Nuclear Weapons Arsenal;

Maintaining Day-to-Day Compliance with Environmental Laws; And

Remediating Massive Amounts of Environmental Contamination.

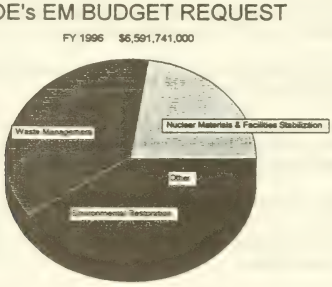
The EM budget funds the work needed to solve each of these problems. DOE's proposed EM FY 96 budget (after considering use of prior year balances and other adjustments) is $6.6 billion. Of that amount:

23% of EM FY 1996 budget ($1.7 billion) consists of programs transferred from the Office of Defense Programs since the end of the Cold War: security and safeguards for over 25 metric tons of plutonium and many tons of enriched uranium, and other non-environmental "landlord" costs of maintaining former nuclear weapons production facilities in a safe condition.

37% of EM's FY 96 budget ($2.7 billion) supports safe storage and limited treatment for DOE's 50-year backlog of mixed and radioactive wastes.

Only 27% of EM's FY 1996 budget ($2.0 billion) is slated for environmental cleanup.

The remaining 13% of the FY 1996 allocation is for technology development (5%), Decontamination and Decommissioning (4%), and Program Management (4%). These different functions are described in more detail below.



FISSILE MATERIALS MANAGEMENT

DOE's storage of plutonium presents significant risks and costs that must be addressed. In addition to the obvious security concerns associated with plutonium, a recent DOE study found 299 "vulnerabilities" associated with the storage of over 26 metric tons of plutonium across the weapons complex. EM manages over 25 of the 26 tons. Most of these vulnerabilities pose risks to workers, but many also pose risks to the public and the environment, as well as raise grave national security concerns.

Until the end of the Cold War, DOE seldom stored plutonium for any length of time. Consequently, DOE has not established standards for the safe long-term storage of plutonium. However, the chemical and radiological properties of plutonium tend to degrade containers and make safe storage difficult over long periods of time. Plutonium in contact with plastic generates hydrogen gas, which can build up pressure and rupture containers, and also creates the potential for fires or explosions.

Plutonium metal exposed to air can oxidize, increasing greatly in volume and again rupturing containers. Additionally, some forms of plutonium are pyrophoric, meaning they can spontaneously combust if exposed to air.

Many of the vulnerabilities identified in the DOE study are associated with inadequate or deteriorated packaging or corrosive materials. For example, F- and H-Canyons at the Savannah River Site (South Carolina) store about 370,000 liters of unstable, corrosive plutonium solutions that cold breach their containers, causing worker exposures and public and environmental contamination. Some of these solutions also pose criticality concerns. Lawrence Livermore National Laboratory (California) stores hundreds of containers of plutonium in various forms. Eight containers have bulged due to buildup of internal pressure, possibly caused by oxidation and poor moisture control. The containers could rupture, causing worker exposure. The material conditions and packaging for most remaining containers are not adequately known.

Another cause of vulnerabilities is the age and poor condition of the weapons complex. Most of DOE's plutonium facilities are 25 to 40 years old, and contain critical safety systems such as gloveboxes and ventilation systems that have deteriorated from age, exposure to radioactive and corrosive materials, and deferred maintenance. Failure of these systems could result in worker exposures and, in some cases, releases of plutonium to the environment. Examples include Buildings 771, 776, and 779 at Rocky Flats (Colorado), Technical Areas 18 and 55 at Los Alamos National Laboratory (New Mexico), and the T and SW/R buildings at the Mound facility (Ohio).

Resolving the plutonium vulnerabilities across the complex is a major undertaking. DOE estimates that stabilizing the unstable forms of plutonium stored at Rocky Flats may cost $650 million. However, the costs of simply watching plutonium are also high. At Rocky Flats, for example, it costs over $130 million to provide the security and safeguards for plutonium stored in eight buildings, approximately 20% of the plant's FY 1995 budget. This figure could be reduced substantially by stabilizing the plutonium and consolidating it into one building.

WASTE MANAGEMENT

DOE has a tremendous backlog of mixed and radioactive wastes that require treatment for safe storage and disposal. DOE presently stores about 833,000 cubic meters of mixed radioactive and hazardous wastes, and 250,000 cubic meters of solely radioactive wastes. Many of these wastes have never been characterized, and most have not yet been treated in any way. Until these mixed and radioactive wastes are treated, they cannot be disposed. Until they are disposed, they will continue to require costly surveillance and monitoring, and will continue to pose risks to workers, the public, and the environment.

About 100 million gallons of the mixed waste is high-level waste, most of it in 243 underground tanks in four states (Washington, Idaho, South Carolina and New York). Many of the tanks have leaked, and continue to leak, into the ground. This waste is a mixture of highly radioactive isotopes and hazardous chemicals that will remain radioactive for tens of thousands of years. It must be

treated before it can be safely disposed. The current estimate for the cost of treatment ($37 billion) makes treatment of high-level waste one of the costliest single tasks facing DOE. However, successful treatment would significantly reduce storage and monitoring costs. At Hanford alone, the cost of maintaining the high-level waste tanks is between $300 and 350 million annually.

DOE stores about 2,700 metric tons of spent fuel, mostly in water-filled storage pools in four states (Washington, Idaho, South Carolina, and New York). While this is a small volume compared to commercial spent fuel, DOE's spent fuel is not designed for long-term storage. Some of the containers have corroded, posing risks to workers and the environment, In some cases, DOE spent fuel contains highly enriched uranium, thus presenting security concerns, as well. Some spent fuel may require reprocessing or other treatment to prepare it for long-term storage or disposal.

Over 400,000 liters of corrosive plutonium solutions stored at Savannah River, Rocky Flats, and Hanford pose numerous risks, including explosion, fire, "criticality events" (a chain reaction that releases heat and radiation), and leaks. Plutonium solutions are the form most difficult to store. These solutions must be solidified.

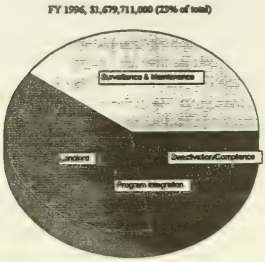
THE WEAPONS COMPLEX MORTGAGE

DOE has estimated that between 4.5 and 5 billion dollars (68% to 76%) of the total FY 96 budget, is required simply to maintain the status quo at EM's facilities. This level of spending does not accommodate actions to reduce risks or costs, or to address problems caused by deferred maintenance. However, investing additional money to reduce the "mortgage" of an aging and costly set of weapons production facilities would yield significant payback within a few years.

As noted above, 23% of the FY 1996 budget is allocated to Nuclear Materials and Facilities Stabilization. Of that allocation, 40% (nearly $672 million) supports maintenance of vital safety systems and surveillance activities to ensure there are no thefts or releases of fissile materials. These costs could be reduced substantially by stabilizing and consolidating these materials. For example, at Rocky Flats, plutonium is stored in eight former production buildings at a cost of over $130 million annually for security and safeguards (20% of the plant's FY 95 budget). Stabilizing the plutonium and consolidating it into one building would substantially reduce this annual expenditure, and would reduce the significant risks posed by the unstable plutonium. However, stabilization is estimated to cost $650 million and consolidation is estimated to cost $45 million.

38% ($638 million) of EM's FY 96 allocation to Nuclear Materials and Facilities Stabilization will fund "landlord" activities at former weapons production facilities -- keeping the lights and heat on, maintaining roads, and the like. Deactivation, decontamination and decommissioning of surplus facilities can reduce these costs.

Nuclear Materials and Facilities Stabilization



Most of the Nuclear Materials and Facilities Stabilization costs do not represent increased expenditures, but simply a transfer of existing spending from one account to another. Between FY1991 and FY1995, transfer of the landlord, security, and safeguard costs from Defense Programs accounted for more than half of the growth in the EM budget.

Many former defense production facilities that are turned over to EM have significant deferred maintenance problems that violate current environmental or safety standards. If not corrected, such problems may cause injuries or death to workers, or may cause additional releases of contaminants. Thus, even though a facility's operating budget is usually transferred from Defense Programs to EM along with the facility, EM must frequently incur additional costs to fix problems caused by deferred maintenance.

With the end of the Cold War, the budget for EM's Nuclear Materials and Facilities Stabilization Office, which manages these landlord and security functions, will grow substantially as more former weapons production facilities are transferred to EM. Again, while this will increase EM's overall budget, it is a transfer of existing expenditures, albeit often incomplete to actually fix problems and reduce overall landlord and decontamination and decommissioning costs.

ENVIRONMENTAL RESTORATION

The DOE weapons complex covers 3,300 square miles of land in 36 states. Over this area, there are over 10,000 sites where hazardous substances were or may have been released. The nature and extent of contamination has been fully characterized at fewer than one-quarter of these sites. DOE estimates that it has contaminated over 600 billion gallons of groundwater. DOE also estimates that it will have to remediate 33 million cubic meters of contaminated soils, debris, and other wastes from environmental restoration and decontamination and decommissioning activities.

In addition to addressing environmental contamination, the Environmental Restoration ("ER") program also has responsibility for decontaminating and decommissioning the 3,500 facilities that comprise much of the weapons complex. The facilities include large manufacturing buildings, reactor buildings, vast uranium enrichment complexes, and chemical separation facilities, as well as the equipment inside them, such as gloveboxes that were used for working with plutonium. Remediation alternatives may range from reuse of a completely decontaminated building to building demolition and disposal of the rubble, to filling the buildings with some material such as cement and sealing them. Some facilities are too radioactive to enter, so remediation work must be performed using robotics.

DOE recently estimated that the cost of remediating its environmental contamination and decontaminating and decommissioning the buildings at $45 billion (including assessment, surveillance and maintenance, landlord and program management costs, the total rises to $65 billion.) This estimate assumes that there will be substantial restrictions on future use of these sites. Specifically, it assumes that most sources of groundwater contamination are removed, but that most contaminated groundwater is not treated; that most contaminated soils are capped in place or consolidated and capped; that small buildings are demolished or cleaned for reuse, and that heavily contaminated facilities are stabilized, collapsed and capped in place.

FURTHER CUTS IN EM'S BUDGET WILL HAVE CONSEQUENCES

The administration's budget targets already incorporate substantial gains in productivity that commit DOE to do more work with less money in FY 96 and beyond. For FY 96, DOE has proposed to accomplish $8.02 billion in work scope for $6.6 billion in new budget authority.

DOE has estimated that EM funding requirements will increase from nearly $6 billion in FY 95 to over $10 billion in FY 2000. The cost increases are due to transfer of additional former weapons production facilities (and their budgets) to EM's management ($843 million in FY 1996 alone); increasing environmental restoration costs as this program moves from investigation to actual "cleanup"; and increasing waste management costs as DOE begins to treat its 50-year backlog of mixed wastes pursuant to the Federal Facility Compliance Act of 1992.

DOE has estimated the funding requirements for its environmental program will exceed new OMB budget targets by $17 billion between FY 1996 and FY 2000. DOE has promised productivity enhancements of 28%. Private sector experience suggests that this rate of productivity improvement is close to the maximum that can be achieved by large organizations. Even if DOE succeeds in achieving this goal, DOE may still be over $7 billion short of its needs, compared to the OMB targets

II. RESPONSES TO CRITICISMS OF THE DOE CLEANUP PROGRAM, THE STATES' ROLE IN OVERSEEING CLEANUPS OF FEDERAL FACILITIES, AND RECOMMENDATIONS FOR REFORM

Over the past few months, criticism of DOE's management of the EM program, and of the state role

in regulating both DOE and other federal facilities, has become increasingly common. We believe that some of the specific charges are right on the mark; others, however, are cut from whole cloth. In particular, we disagree with characterizations of the states as unrealistic, inflexible, and unconcerned with costs of DOE and other federal facility cleanups. Below, we will set the record straight on these issues. We also discuss those criticisms that go to the heart of the problem, and offer some constructive solutions to them.

A. Response to Criticisms of the States' Exercise of Their Regulatory Authority

Critics of the states' role in regulating DOE facilities argue that the states have been unreasonable in a number of respects. Below, we summarize the various charges, and respond to them.

1. Criticism: State regulators have imposed unrealistic schedules in cleanup agreements, and have been unwilling to change them.

Response:

Schedules were not unilaterally imposed, but instead were negotiated with DOE, including DOE HQ representatives. DOE negotiators made clear that careful headquarters review of each agreement would be required to ensure that the schedules were reasonable, not only from the site's perspective, but from a nationwide perspective as well. If DOE believed that it could not accomplish the schedules, it had an obligation to bring that concern to the negotiating table.

In any event, the schedules in these agreements were objectively reasonable. Most IAGs for DOE facilities included only schedules for investigation. Those schedules are no more stringent than schedules for comparable activities at private NPL sites. Some accounts of IAG schedules are simply factually wrong. For example, contrary to statements in the GAO report, the Rocky Flats Inter-Agency Agreement ("IAG") did not require cleanup of the plant in 10 years. It only required that the characterization of contamination be completed within 10 years. No final cleanups were even scheduled to begin in 10 years, although a couple of interim actions were scheduled. Additionally, the state and EPA agreed to numerous extensions of milestones in cases where DOE demonstrated good cause. DOE's failure to achieve these agreed schedules reflects a combination of poor management and lack of commitment.

All agreements contain provisions for extending milestones, and states have been very reasonable in granting extensions when justified. Additionally, states such as Washington and Colorado have already agreed to re-negotiate schedules in light of fiscal constraints, shifting priorities, and technological constraints. For example, Colorado and EPA Region 8 recently agreed to defer $35 million worth of environmental restoration required to be performed in FY 1995 under the cleanup agreement, so that DOE would have money to accelerate stabilization of plutonium, a higher risk problem. Accelerated stabilization reduces storage costs, and allows for accelerated plutonium consolidation, thereby further reducing costs.

A few of DOE's problems require development of new technologies, and deadlines help force development of those technologies. Technology forcing provisions have been used successfully in a number of environmental statutes. In one statute that is directly on point, Congress established statutory deadlines in the Federal Facilities Compliance Act to force DOE to develop mixed waste treatment technologies and capacity. Just as importantly, DOE's long term planning has historically been poor. Enforceable end points for the various elements of DOE's environmental programs are needed to ensure short term actions will lead to the accomplishment of long term goals.

2. **Criticism: State regulators are not concerned about costs.**

Response:

States have a strong interest in ensuring that DOE maximize use of its fiscal resources. We understand as well as anyone that the American taxpayers have no interest in funding this program if it is not cost-effective. State regulators have worked with DOE to lower costs by sharing with DOE lessons learned in regulating other facilities, and by being flexible in interpreting regulations. A complete listing of examples, even in summary form, would run dozens of pages. A few are highlighted below.

Ohio has supported use of the "corrective action management unit" concept for cleanup actions at Fernald. Use of this concept allows contaminated soils to be disposed safely on-site without requiring the expensive treatment necessary to meet RCRA's land disposal restriction standards, saving millions of dollars compared to off-site disposal. Similarly, at Rocky Flats, Colorado has worked with EPA and DOE to help design a corrective action management unit to allow for on-site disposal of certain mixed radioactive and hazardous wastes, at a potential savings of hundreds of millions of dollars compared to off-site disposal.

Ohio has worked with DOE and EPA to develop realistic future land use scenarios and cleanup levels at both Mound and Fernald. General agreement has been reached that residential use at both Fernald and Mound is inappropriate, and cleanup levels will reflect this decision.

Colorado, Kentucky and Ohio have worked with DOE to identify and eliminate unnecessary groundwater monitoring wells and other unnecessary sampling, saving millions of dollars annually at Rocky Flats, Paducah and Fernald.

Kentucky regulators raised concerns over what they considered inflated DOE cost estimates for a solid waste landfill. After considering state comments, DOE reduced its cost estimate from $12.7 million to $6.8 million.

Tennessee regulators raised concerns over project scope and cost related to construction of a wastewater lagoon as part of the K-25 Potable Water Treatment plant. After considering state comments, DOE was able to reduce the project costs from $8 million to $2.6 million.

Idaho works closely with DOE in planning all cleanup projects to ensure DOE is making proper regulatory interpretations that could significantly impact project costs.

Many states, including Colorado and Kentucky, have worked with DOE to integrate overlapping statutory requirements so that one report can meet requirements of different regulatory schemes (e.g., RCRA, CERCLA, and NEPA).

Colorado consistently encourages DOE not to make overly conservative and unnecessarily expensive assumptions. For instance, DOE had been classifying and managing equipment such as hammers and scaffolding as hazardous or mixed waste simply because these items were located in a room which contained solvents and radioactive materials, even though there was no evidence that the items were contaminated. Colorado regulators explained to DOE the proper interpretation of the regulations to determine what items could be excluded from the hazardous waste category. With the aid of this guidance, DOE saved hundreds of thousands of dollars.
Washington state reviewed a DOE proposal for a waste storage tanks and pointed out that DOE had over-designed the tank to meet nuclear reactor standards. Washington's input helped DOE develop an appropriate design and avoid needless expenditure.

With Colorado regulators' prodding and active assistance, DOE's contractor at Rocky Flats developed a Hazardous Waste Compliance Program for the site. Through a series of meetings and inspections conducted with the Health Department's assistance, EG&G established an ongoing internal self-audit system. In the process, EG&G discovered and corrected over 3000 probable violations. State regulators did not assess penalties for any of the probable violations discovered in this audit.

On a nationwide level, the Environmental Council of States, as well as states individually, are working with EPA to review existing regulations to make them more reasonable, and flexible, while still protecting human health and the environment.

3. Criticism: Applying state and federal waste management (RCRA) requirements to DOE's facilities conflicts with Atomic Energy Act requirements and wastes money.

Response:

DOE has raised this argument for years, but has never been able to support it with real examples. At a meeting of the State and Tribal Government Working Group with DOE in 1991, states were able to demonstrate in each case of alleged conflict, that DOE can, indeed, comply with RCRA requirements while meeting AEA concerns.

The RCRA regulations are primarily safe management practices. Compliance with these requirements minimizes or prevents future releases of mixed or hazardous wastes. Because it is less expensive to prevent such problems than to clean them up, RCRA compliance saves money in the long run. Conversely, non-compliance can lead to expensive messes. For example, DOE allowed

a tank system containing mixed radioactive and hazardous waste to leak for three days after the leak was first discovered because it did not know either which pipes went where, or the location of the shutoff valves for the system, as required by the RCRA regulations. The leak contaminated several rooms. Had DOE shut off the tank immediately, as required under RCRA, the resulting contamination and cleanup costs would have been far less.

Implicit in this criticism is the notion that it would be better to let DOE regulate hazardous waste management at its own facilities because it could better balance those concerns with AEA concerns. One would think that if we have learned anything from the environmental problems at DOE facilities, it is that DOE self-regulation is a disastrously flawed policy. Our experience has been that not only does state enforcement of RCRA reduce risks from hazardous waste, it also highlights instances of DOE's non-compliance with its own radiation safety practices. For example, Colorado ordered DOE to inspect certain unpermitted tanks containing high plutonium content mixed wastes. The RCRA inspections revealed that DOE had not conducted the inspections required by its own internal procedures to guard against the occurrence of a criticality event. The lesson? Independent oversight is needed to ensure compliance with any regulatory system.

4. **Criticism: Cleanup agreements are too unwieldy. Requirements change faster than the agreements can be re-negotiated.**

Response:

Taking external oversight of DOE cleanup to be a given, there must be some administrative mechanism to implement the oversight and administer the cleanup program. At a complex site like Hanford, any such administrative mechanism -- agreement, order, or permit -- is bound to be complex. While improvements in implementing the agreements can be (and are being) made, eliminating the agreements will not make the problems any easier to solve. In fact, the agreements provide an excellent mechanism for integrating the myriad activities that must occur at large, complex sites, and for balancing the different concerns of the parties to the agreement.

The agreements didn't create these problems. Neglect and a lack of outside oversight did. Solving these problems requires continued outside oversight. Agreements are a practical means of providing outside oversight.

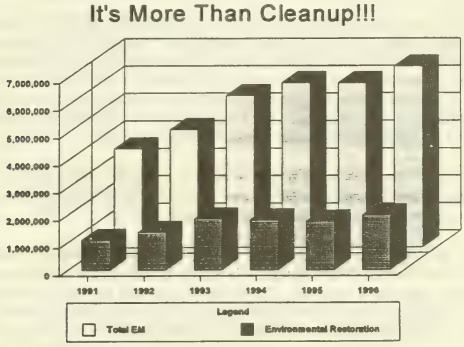
B. Response to other criticisms of the DOE environmental program

1. **Criticism: We've spent $23 billion on this program since 1989, and have precious little cleanup to show for it.**

Response:

Without diminishing the significance of DOE's poor management of this program, it is important to note two points. First, most of the money DOE's environmental program has spent since 1989

did not go to cleanup, but to maintain the aging weapons complex facilities, to bring them into compliance with safe management requirements, and to store wastes. Only about $8 billion has been spent on the cleanup program.



Second, much has been accomplished. About 17% of DOE's cleanup projects have been completed to date. Additionally, much of the cleanup program has, necessarily, focused on investigating the vast extent of contamination at DOE's sites. While states support adopting more of a bias for action over studies, there are substantial risks in proceeding to clean up sites without first investigating them adequately. For example, at Rocky Flats, the 881 Hillside French drain is substantially larger -- and more expensive -- than needed, because this interim remedy was implemented before pinpointing the sources of groundwater contamination that it addresses.

No one denies that DOE has done a poor job of managing this program. A significant part of the problem lies in DOE's historic reliance on contractors to a degree far greater than any other federal agency. There simply were not enough qualified DOE personnel to provide adequate contractor oversight. Nor did DOE employ sufficient qualified cost estimators or project managers. In addition, the "cost plus" contracts that DOE used with the management and operations contractors who ran the weapons complex rewarded inefficiency in performing environmental work. Too, the M&O contractors were generally not experienced in environmental cleanup.

Another major source of inefficiency in DOE's environmental program is the tremendous cost of simply maintaining the status quo. Most of the $1.6 billion "nuclear material and facilities stabilization" budget does nothing to reduce risk -- it simply keeps the plants operating and from

becoming more dangerous. Similarly, much of the waste management budget is spent on "standing still." To bring these costs down, fissile materials must be stabilized, consolidated, and dispositioned, and wastes must be treated and disposed. DOE's current budgets do not provide for substantial progress in these areas.

To its credit, DOE has recognized these problems, and it has implemented several measures to address them: hiring additional trained project managers and cost estimators, improving its cost estimating guidance, shifting to performance based contracts, and working to reduce the "mortgage." Whether DOE's efforts to date will prove sufficient is not yet known, and it is important to monitor those efforts closely. One reform, the shift to performance-based contracting, is so important that it should be made mandatory. To ensure that DOE obtains the maximum value for each dollar it spends, we recommend the following reforms be adopted and implemented:

Reform Proposal 1. Increase DOE's efficiency through reducing the infrastructure costs of maintaining former weapons complex facilities, contract reform, and better oversight of contractors. These improvements can save hundreds of millions of dollars annually.

a. Create the **"Department of Energy Productivity Reform Review Commission"** to study and evaluate DOE's productivity reform efforts to date, and to recommend additional changes, if necessary. The commission would have a two-year life, and would include members from state regulatory agencies, DOE facilities, DOE headquarters, and experts in the field of contract management and organizational efficiency. The commission's review should include whether DOE has employed adequate numbers of appropriately trained project managers and cost estimators; DOE's use of "performance-based" contracts and "integrating contractors"; and DOE's efforts to reduce the cost of operating the former weapons complex facilities. The commission should review not only DOE's EM program, but its other programs as well, to ensure the same sort of reforms are being implemented throughout the department.

b. Require performance-based contracting, instead of "cost plus" contracting, for all DOE environmental contracts. Performance measures should include achieving specified, objective environmental results and reducing the unit costs of conducting required actions.

c. Provide for independent audits of DOE's environmental programs. These audits would focus on (1) whether DOE was paying more for a given service (e.g., drilling a groundwater monitoring well) than prevailing prices in the private sector, and if so, whether the price differential is justified; and (2) whether DOE was contracting for "Cadillac" services unnecessarily. Allow participation in the audits by state regulators, if they so desire. States should also be allowed to suggest projects to be audited

d. DOE should be encouraged to make greater use of leveraging private sector capital investments. This would include use of commercial treatment and disposal technologies and facilities. Privatization of expensive capital cost DOE EM projects should be explored to determine whether such an approach might reduce costs or eliminate "budget spikes" caused by federal funding of such projects. Such initiatives should be formulated in a manner that: (i) assures compliance with applicable regulatory requirements; (ii) provides appropriate means of ensuring accountability (e.g., CERCLA §119 indemnification and liability provisions); and, (iii) encourages competition.

e. States should continue working with DOE to evaluate means of reducing "mortgage costs" of maintaining former weapons complex facilities.

f. DOE should share its cost estimates and project planning assumptions with state and EPA regulators to allow verification that cost estimates are reasonable, and that planning assumptions are correct.

g. DOE headquarters should reward productivity improvements at individual facilities by allowing the facility to retain such savings to perform additional work scope.

h. States and federal facilities should make better use of collaborative approaches to federal facility environmental problems, such as "partnering" or "quality action" approaches.

2. **Criticism: The statutory and regulatory framework for federal facility cleanups is not effective: there is too much overlap and too many burdensome requirements that add little or no value.**

Response:

We generally agree with this criticism. Cleanup authorities under CERCLA and RCRA do overlap substantially. At DOE facilities, the addition of DOE's self-regulatory role under the Atomic Energy Act, and DOE's interpretation of NEPA's application to cleanup actions, further complicates the picture.

Although states and EPA have developed a number of workable approaches to integrating the requirements of RCRA and CERCLA, the overlap does create additional complexity and duplication and raises the possibility of conflicting regulatory decisions: the "dual master" problem. Because EPA cannot oversee sister federal agencies as effectively as states can, we recommend that this problem be resolved by allowing the states to exercise EPA's CERCLA authority, or to implement their own proven cleanup programs (including corrective action programs under RCRA) in lieu of CERCLA. We are aware that claims have been made that if states are allowed to regulate federal facility cleanups, they will require "gold plated" remedies. This is absolutely untrue. There is no

evidence to suggest that states would be so irresponsible. In fact, as noted above, states have a track record of working with federal agencies to reduce costs of environmental compliance and cleanup.

The interplay of RCRA and CERCLA poses another problem: it discourages an integrated approach to addressing the complex and interrelated environmental management problems that exist at large federal facilities. Many DOD and DOE facilities are so large and complex that it is not possible to develop an effective environmental management program without considering the relationships between environmental cleanup of old contamination sites and other activities such as ongoing waste management. Regulatory integration is needed because the various statutes that apply to these facilities address different risks. Failure to integrate these activities in the past has resulted in numerous inefficiencies, such as situations where environmental contamination was begun but could not be completed because there was no place to store the resulting wastes. To resolve this problem, EPA, states and federal agencies have sought to combine various environmental requirements in a single agreement, usually an "interagency agreement" under CERCLA. One problem with this approach is that incorporating any state environmental requirements in a CERCLA cleanup agreement may preclude the state from being able to enforce them, under the Department of Justice's interpretation of certain CERCLA provisions, notably §113(h). We recommend modifying CERCLA to address this concern.

The problem of integrating different regulatory requirements is exacerbated at DOE facilities by the addition of the AEA to the statutory mix. The extent to which DOE has exclusive jurisdiction in this area is unclear, as is the relationship of the various statutory authorities in cases where there is overlap. This confusion has led to difficulties in negotiating schedules under interagency agreements. For example, a state and EPA may agree it is appropriate to defer environmental cleanup actions (over which they have regulatory jurisdiction) in order to allow DOE to address a higher risk activity over which the state and EPA have no authority. However, the state and EPA would have no means of ensuring DOE successfully addresses the higher risk activity unless the commitment is somehow embraced by the parties.

Another problem lies in the application of DOE orders to environmental management activities. Many times these Orders have been interpreted and applied in an extreme "worst case scenario," or have been applied unthinkingly to various activities, regardless of the appropriateness of doing so. For example, DOE Order 5820.2A requires DOE to conduct performance assessments for DOE disposal facilities. This requirement may have made sense when DOE was completely self-regulating. But now these assessments are expensive, time-consuming, and duplicative when applied to disposal

facilities required under CERCLA or RCRA. In another case, DOE Order 5480.31 requires DOE to conduct Operational Readiness Reviews prior to starting up waste treatment facilities. This process requires much more time and documentation compared to requirements of other federal agencies, such as the Nuclear Regulatory Commission, for comparable waste streams.

Additionally, there is no existing mechanism for interpreting and applying DOE orders in a coherent and consistent fashion. Frequently, DOE leaves it to the contractor to decide how to meet a given order. Even DOE has acknowledged that the self-regulatory scheme established under the AEA is not effective.

We also agree that revision of some EPA regulations could provide environmental protection while allowing greater flexibility to regulators and regulated entities. States' ability to be flexible and creative is often constrained by the rigidity of EPA regulations, combined with the requirement that states be no less stringent than EPA to maintain their environmental program authorizations.

Finally, we agree that reasonably anticipated land uses should be identified and considered early in the cleanup process. Although this can be done under existing law, clarifying this point would be useful. It deserves special mention that, because the decision of future land use will have significant and long-term impacts (potentially thousands of years) on the communities surrounding these facilities, we need to ensure that land use decisions at federal facilities are not made unilaterally by the agency that owns or operates the facility.

Reform Proposal 2. To create a statutory and regulatory system that ensures an effective approach to resolving environmental problems at federal facilities, we recommend the following actions:

a. Allow qualified states to assume the role of sole regulator of cleanups at federal facilities.

 i. Streamlined delegation of EPA's Superfund authority to qualified states. States with corrective action should receive this authority automatically within six months of request. EPA should expedite transfer to non-authorized states after review of qualifications.

 ii. There should also be an expedited process for authorizing states with their own "Superfund" programs to implement those programs at federal facilities in lieu of CERCLA. States have proven that their programs are faster, cheaper, and more efficient than CERCLA.

 iii. At federal facilities that are subject to RCRA, states with authorized corrective action programs should be allowed to oversee cleanups pursuant to RCRA corrective action instead of CERCLA.

b. Develop a process involving states, EPA and others in reviewing and recommending, within 18 months, elimination or modification of DOE orders, as appropriate.

c. Amend CERCLA to clarify that reasonably anticipated land uses should be identified and considered early in the remedy selection process; create process that ensures land use decisions are not made unilaterally by federal agency.

d. Clarify that, upon agreement of all parties, federal facility agreements can include enforceable negotiated requirements to implement activities impacting cleanup activities, such as decontamination and decommissioning of buildings, nuclear materials and facility stabilization, and mortgage reduction activities.

e. Complete the ongoing joint state/EPA review of EPA regulations to streamline or eliminate overly burdensome regulations.

f. Provide for more effective integration of requirements imposed by different environmental statutes, including RCRA, CERCLA, NEPA, and AEA. This would include amending CERCLA to clarify that integrating state environmental requirements in a CERCLA §120 agreement does not impair the state's authority to enforce such state requirements.

3. **Criticism: The agreements do not allow for consideration of national priorities. States have no means or incentive to consider the cumulative fiscal impact of all the agreements. The agreements do not focus on the highest risks, yet they drive allocation of DOE's budget because they are legally binding. States need to let DOE set the priorities.**

Response:

DOE has a $230 billion environmental management problem largely because it set its own priorities for the last 50 years. DOE has amply demonstrated that it is not qualified to assume the responsibility of establishing environmental priorities. DOE should not be treated differently from other polluters and allowed to set its own priorities. DOE priorities should be established through independent regulator oversight to ensure protection of human health and the environment. If we are to solve DOE's environmental problems, we need to recognize the need to build DOE's environmental budgets from the "bottom up."

We disagree that the states are unwilling or unable to factor national priorities into their decision-making. Because cleanup agreements are negotiated, they allow DOE to bring national priorities, including fiscal concerns, to the table. States have shown their willingness to consider fiscal constraints in negotiating or re-negotiating agreements. Twenty-three Attorneys General sent a letter to DOE in January of this year making that commitment. At an NGA-DOE meeting in February, states again expressed a willingness to consider fiscal constraints in revising agreements.

Washington state recently renegotiated the Hanford agreement with the explicit goal of saving $1 billion over the next five years. Finally, some agreements or proposed agreements, such as the draft Rocky Flats Cleanup Agreement, explicitly allow consideration of federal fiscal constraints.

We also disagree that the agreements are not risk-based. The current system is, to a large extent, risk-based. DOE itself acknowledges that 80-85% of its legal obligations are risk-based; though we have not had an opportunity to review this estimate, it should be treated as a minimum. While some high risk problems are not included in the agreements, that is primarily because these problems involve fissile materials, and that DOE has been reluctant to acknowledge that EPA or the states may have any jurisdiction over actions to address these problems. Recommendation 2(d) would clarify that agreements may include negotiated requirements to address these high risk problems. And, to the extent that DOE has funded activities under the agreements rather than actions to address these higher risk problems, that fact is testimony to the effectiveness of the agreements. Rather than eliminating these effective tools, we should broaden them to include the highest risk problems, as recommendation 2(d) would allow.

While reducing risks to human health and the environment is the primary goal of DOE's environmental program, risk is not the only relevant criterion in prioritizing actions, and may not be the most important one in all circumstances. Other factors, such as security concerns, pragmatic aspects of sound project management, the need to reduce the cost of maintaining obsolete and deteriorating facilities, worker safety, the desirability of releasing less-contaminated sites for alternative uses, cultural concerns, and the like, also need to be considered. For example, as noted above, consolidating plutonium at Rocky Flats has the potential to reduce annual security and safeguard costs by as much as $100 million. Yet, consolidation - in itself - does not reduce risk. A prioritization system based solely on risk would not allocate funding to plutonium consolidation. Because of the variety and unique character of the circumstances at each facility, risk and other relevant factors can only be weighed and balanced effectively at the facility level.

Moreover, while risk assessments can provide useful information to decision-makers in setting priorities at particular sites, they are neither so accurate nor so exact as to allow an ordinal ranking of different sites from "most risk" to "least risk." Additionally, there are many different types of risks at DOE facilities, and comparability among them is difficult. Given the limitations on the use of risk in decision-making, and given the need to consider other factors besides risk, a centralized system would not be very efficient.

The states acknowledge that DOE's national program managers do have a legitimate role to play in setting priorities. So do DOE field-level managers. So do the states. So do the people who live near these sites. In 1993, a federal advisory committee (known as the Federal Facility Environmental Restoration Dialogue Committee, or simply "the dialogue committee") recommended a system for setting priorities and for allocating budgetary shortfalls that recognized and balanced these different roles. The Committee's recommendations were subsequently endorsed by NAAG, EPA, DOE and DOD. We agree with the Committee's recommendations.

First, most priority-setting decisions should occur at the individual facility (e.g., Rocky Flats or INEL). Second, in cases where the Congressional appropriation is less than the amount requested by DOE, DOE should follow a two-step process for allocating the shortfall in funding. The first step recognizes the principle that most priority-setting decisions should occur at the facility level by reducing the requested funding level for each facility and for DOE headquarters by the same proportion as the overall funding shortfall. For example, if Congress cut the DOE cleanup budget by 10%, DOE headquarters and each DOE facility's requested share of that budget would also be cut 10%. The affected stakeholders at each site would then attempt to allocate the cut in a manner that minimized the impact on the established scope and schedule of actions. If this is not possible, under the second step, DOE may propose shifting funds between facilities. In so doing, DOE would have to consult with the affected regulators and other stakeholders. DOE plans to host a meeting this summer to discuss these issues.

Many states also agree with the Committee's recommendation that in these circumstances, state and federal regulators should re-negotiate compliance schedules and refrain from taking punitive enforcement actions, provided DOE implemented the Committee's recommendations in a good faith manner, and the funding requested in the President's budget represented a best estimate of the funding necessary to meet all of the agency's legally-binding environmental obligations.

There is one exception to the above principles. We consider actions that prevent wastes or pollutants from contaminating the environment or threatening human health to be of a fundamentally different nature than actions that remediate environmental contamination that has already occurred. In significant measure, federal facilities contributed to their own costly environmental cleanup problems by failing to comply with preventive environmental regulatory programs (which are sometimes referred to as "day-to-day" compliance and management activities). Given the difficulties we face in funding cleanup programs, we firmly believe that compliance with preventive regulatory requirements is a must. While fiscal considerations may sometimes limit the amount of remedial activities that can be conducted in a given year, preventive activities should always be fully funded.

Reform Proposal 3. Priority Setting and Funding Allocation Among Federal Facilities. We endorse the recommendations of the dialogue committee regarding priority setting. To ensure that those recommendations can be implemented in an effective manner, we recommend the following changes:

a. Establish "appropriations reconciliation" meetings to be held annually between DOE-HQ, DOE sites, and EPA and state regulators at an appropriate time of the budget planning cycle. While the meetings would not impair any entity's decision-making authorities, they would present a consolidated forum for dialogue on the need for any shifts of funding between sites.

b. Establish a list of factors to guide discussions in the reconciliation meetings described above. These factors would include short- and long-term human health

risk, environmental risk, risk reduction, reduction of life-cycle cleanup costs, the need to fund preventive compliance actions, reduction of infrastructure costs of maintaining former weapons production facilities, economic development concerns, pragmatic aspects of sound project management, cultural concerns, Native American statutory/treaty/trust rights, and the views of affected citizens, especially those who live nearest to the facilities.

c. Create a forum for affected stakeholders to provide advice to DOE and its regulators regarding whether, and how, to shift funds between sites in the event of a appropriations shortfall. These discussions should be guided by the same set of factors described above.

STATEMENT OF RONALD W. COCHRAN, EXECUTIVE OFFICER, LAWRENCE LIVERMORE NATIONAL LABORATORY

Mr. COCHRAN. Thank you very much, Mr. Chairman and members of the committee. I am Ron Cochran, and I am the executive officer for the Lawrence Livermore National Laboratory. I am pleased to be here to provide the Laboratory's perspective on some aspects of these very important issues.

You have before you some testimony from our laboratory which was prepared by Dr. Jay Davis. Unfortunately, he was unable to be here, so I will summarize that and provide the Laboratory's perspective if it is okay with you.

Mr. BATEMAN. Certainly.

Mr. COCHRAN. You have heard this afternoon extensive testimony on major program issues and proposed actions to address them. I would like to change that a little bit and focus the committee deliberations on an additional perspective.

While there are clearly many difficult problems and regulatory commitments which are the primary focus of attention, I want to call your attention to some opportunities for some exceptional advances in certain areas which really does provide great leverage to the Government. I want to tell you some places where you are getting a lot of bang for your buck, because it is happening. So I am going to highlight a few of those.

Funding for R&D at our lab in this area has been very modest, but working with DOE and other agencies, we have picked some areas where we are getting a lot of leverage, and we are doing that by emphasizing a marriage of science, engineering, risk management, and really enlightened regulatory approaches.

The first example that I would like to cite is one that received some media attention in recent weeks, but I wanted to present it directly to this committee. The example involves the impact of a study on cleanup treatments for leaking underground fuel tanks. This study was performed for the United States EPA and Mobil Oil, and it was a collaboration between Livermore and four of the University of California campuses.

The bottom line of this study is that we found that for about 90 percent of the cases, all you really needed to do was to remove the leaking tank and the soil immediately around it and let natural microbial action take care of the problem.

Now, that study, which I have here, cost $300,000. The State of California is already moving to implement those recommendations, and they forecast a $3 billion savings in the State of California alone. That is 21,000 tanks, and there are 300,000 to 400,000 nationwide. Basically, all we found was that—the component you worry about in this fuel is benzene, and we found that in 90 percent of the cases, it did not get more than about 80 yards from the source before the microbes basically destroyed it. So it turned out that the natural microbes would do just as good a job as engineering safeguards. Engineering safeguards and engineering cleanup was $150,000 per tank. That kind of thing is what I believe can be very helpful in starting to focus the resources where they can do the most good.

We are very proud of that, and we have actually, from a DOD standpoint, now selected 10 sites in California for additional demonstration of that approach.

The second example also involves fuel tank leaks, but it is going to be applicable to volatile organic compounds as well. Those are the most widespread contaminants we have. Basically, we went in with a technique that we borrowed from oil field technology, and we effectively steamcleaned an area 120 feet down on our site to remove 10,000 gallons of gasoline that had been there from leaking fuel tanks.

What you do is basically drill holes around the site, put an extraction well in the middle, and you go in and electrically heat all of those areas where the steam will not flow through the clays to drive out the gasoline, and then you pour steam through it to volatilize the gasoline, and pull it out at the vacuum extraction well.

Now, we did that very successfully on our site and removed 10,000 gallons. Just to give you a perspective of what that leverage will be, we had estimated that the cost to do that would be many millions of dollars and would require several decades. We have actually done the job as an R&D demonstration. The regulators have agreed that we no longer have to treat that spot, and we did it for less than $10 million.

The savings across the country from implementing that are going to be hundreds of millions to billions of dollars.

Mr. BATEMAN. Who was the regulator in question?

Mr. MILLER. California Environmental Protection Agency.

We have now started to license this to the private sector, and we have applications going down at Southern Cal-Edison, where the costs are actually only one-third of what our costs were because we were doing the first application.

So this kind of thing can really achieve great savings nationwide, and even more importantly, it lets us actually get something cleaned up instead of just studying it and dragging it out for decades. So we are very proud of that.

A third area which we are just turning to is to really apply this same technology to the volatile organic compounds. We have a problem at our site. We are a Superfund site, and we are on the National Priorities List, primarily because of solvents that were spilled and leaked when the site was an engine repair naval air station back in World War II. This is down about 100 feet or so in the water table. What we feel we can do is use basically the same steamcleaning technique to take out the most concentrated areas, because it looks like it worked very well for that, and then go in with microbes that we have demonstrated at another site to actually finish off the lower concentrations.

That combined approach, we feel can reduce the cost of cleanup at our site by a factor of about two or three, and what is more, we can clean up the site in 5 to 7 years versus many decades.

The expected cost of cleaning up that site with pump-and-treat is somewhere between $200 and $500 million and many decades. We can do the job in 5 to 7 years with this new approach.

And again, the total investment for this in R&D is a few tens of millions of dollars; and again, we will be working with private sec-

tor companies so we can then make that available to other parts of the country.

So my message here is not to say so much what Livermore has done, because there are examples that other labs could use, and I simply know more about those, but to tell you that there are targets where we can have great leverage if we carefully pick those areas, and we would like to see that done and a little more investment in those kinds of things because I think the results would be something we would be proud of, and we could make some great inroads to actual environmental cleanup for this country.

Thank you very much.

Mr. BATEMAN. Thank you very much, Dr. Cochran.

Ms. Eldredge?

[The prepared statements of Mr. Cochran and Dr. Jay C. Davis follow:]

Environmental Cleanup of Energy and Defense Facilities: A National Laboratory Perspective

House Committee on National Security

Joint Hearing

Subcommittee on Readiness
Subcommittee on Procurement

March 21, 1996

Dr. Jay C. Davis
Associate Director for Environmental Programs
Lawrence Livermore National Laboratory

Chairman Bateman, Chairman Hunter, and Members of the Sub-committees, I am pleased to appear before you to discuss the current status of the cleanup of defense-related facilities in the United States, and the possibilities of cost reduction and acceleration of this enormous process. I understand your concerns about the impacts on readiness of these activities, and your concerns that the taxpayer should receive both wise investment and full value from the investments. I will try to give you my honest impression of where this process stands and then will be glad to respond to any questions you may have.

It is perhaps useful to provide the Subcommittee a bit of information on my personal background to help put my comments in perspective. I am an experimental nuclear physicist, having spent nearly twenty-five years at Livermore as both a research leader and engineering project manager. I have built accelerators and other research facilities for use in areas as diverse as nuclear physics, magnetic fusion, laser isotope separation, and, as such, have a project manager's approach to most technical tasks. Such activities should have clearly defined goals, budgets, and endpoints. I have kept my professional interests active in national security affairs as well, developing and evaluating technical means for treaty verification and serving as a physics and operational leader in two of the confrontational inspections of Iraqi nuclear facilities in the summer of 1991. My principal personal research interests are in the application of accelerator and isotopic techniques to problems as disparate as the dosimetry of carcinogens and mutagens, the mechanisms of global climate change, and the development of verification techniques for nuclear arms control. I currently serve as the Livermore Representative on DOE's Strategic Laboratory Council. This is the Laboratory advisory body tasked by the Assistant Secretary for Environmental Management of DOE to assist in coordination of laboratory activities and in providing information for devising and planning program initiatives as he desires.

The organization that I head at Livermore contains the bulk of the Laboratory's capabilities for research and development applied to environmental matters in the broadest sense of national security. Our geochemists, geophysicists, chemists and chemical engineers in this program help develop and deploy technologies for remediation of contaminant plumes, as well as assessment and managment of wastes left behind by decades of research and production operations for the Department of Energy. As you can see, our portfolio is much wider than just cleanup; we are involved in environmental issues and use environmentally relevant scientific and engineering skills across the wide spectrum of national security, Our geophysical scientists have the lead DOE role in seismic verification of the Comprehensive Test Ban Treaty and provide risk assessment and structural engineering advice to manage the risk and consequences of seismic hazards in areas such as California. Our ecological scientists are involved in assessment of the pathways and bioavailability of toxic and radioactive materials and in the reconstruction of exposures in past nuclear events such as Hiroshima, Nagasaki, and Chernobyl. Our atmospheric science

capabilities are applied to global climate issues, regional precipitation and water budget studies, and we provide and operate the national advisory service for the tracking and dosimetry of the release of radioactive and toxic substances in the atmosphere.

I would like to focus my comments on three principal issues: the role of the national laboratories in environmental matters, the changing state of the national program in restoration and cleanup, and some examples of our own work that I think show that there are major opportunities for cost reductions and acceleration of treatment and cleanup activities.

Role of the National Laboratories

Unlike previous missions, such as development of nuclear weapons and much of the research in the nuclear, particle and fusion areas, environmental work at the DOE laboratories is a widely shared mission, not one wholly controlled by us. Our principal activities in the environmental arena are properly limited to developing fundamental science to understand, assess, and prioritize risks and actions, and to the development of technologies to contain, control, and remediate environmental insult resulting from previous operations or to avoid it in future operations. In carrying out this mission, we are partnered with the national community in ways we have generally not been previously.

- We must be seen as a credible and responsible partner with the public around our facilities and the larger national public that has distrusted us in the past.

- We must develop relationships of trust with local and regional regulators who were in some cases excluded from our facilities and not allowed an oversight role in the past.

- We must work with multiple agencies, not just DOE, as our skills are relevant and appropriately applied to the problems many of them have. Our scientific results often must be validated or used by others if they are to have impact on regulations and priorities. The environmental business of the United States is executed by multiple organizations, ours just one among them. Partnering in this fashion is essential to achieving both leveraging for cost purposes and obtaining review and validation necessary for credibility.

- We must learn to work effectively with corporate partners who will validate the effectiveness and economics of our technologies and apply them at commercial costs and reliability on the national stage.

- We must partner with the research universities to access their disciplinary skills and couple them with our applied and developmental skills to create both new understandings of risk and new technologies to control and recover from

environmental insult. They are not our competitors in this arena, we each bring essential skills to the problem.

• The national laboratories must learn to work as a system, not as competitors to execute this mission. Assistant Secretary Reis has accomplished this for the three Defense Program laboratories in their mission areas. Assistant Secretary Grumbly has all ten of the multi-purpose laboratories (which includes the Defense Program laboratories) well along the path of developing the same style in the environmental management area.

• Finally, and of great importance, we must partner with both the American public, our own agencies, and the Congress to accept the charge to continuously drive down the costs and shorten the time scales of environmental recovery. We cannot accept fifty year projections of cost. We must build repeated review and reanalysis into our efforts without allowing review and reanalysis to become an excuse to delay action. We will have to learn and improve as we work.

This style of partnering and working the problem in public is very different than our mission style of the past, particularly for the defense laboratories. I think I can say to you that we understand how we need to execute our tasks and are doing so in the right fashion. We are embracing a cultural change and evolving as we master this task.

The Changing Nature of National Environmental Cleanup

The national effort in this area, particularly as applied to the problems created by national defense activities during the Cold War, began with the commendable desire to restore all sites to a virgin and pristine state and to create conditions of essentially zero risk. The definition of clean and zero risk was often based on regulations that contained little scientific assessment of real risk, or were in fact based on *deminimus* values associated with the detectability of substances, not their effects. We have learned in the years since that we cannot in fact afford the costs of cleanup to such levels, that such cleanup may not be technically possible, and that such an approach often squanders resources on minor risk, or no risk, while leaving inadequate resource and attention for higher priority matters. We have learned that land has been driven to zero value or made unavailable for release and beneficial use or redevelopment.

In consequence, the national program has begun to change for the better.

• DOE, particularly under the leadership of Assistant Secretary Grumbly, has forced its contractors to become more cost and performance oriented, comparing themselves to corporate benchmarks. In many cases DOE is switching to corporate providers of services, moving contracting for such work toward fixed priced structures as experience is gained and technologies mature.

• DOE has initiated a basic science program to support the needs of environmental cleanup. Congress brought this program forward one year by providing resources in the current fiscal year. There has been an enthusiastic and focused response from the national community. Selection of the initial projects is in progress now.

• The Congress has instructed the Environmental Protection Agency to access the skills of the DOE laboratories in carrying out its mission. The Agency has responded to this charge with enthusiasm. In just the past week, I have been involved in discussions at the EPA on research and assessments of mutual interest and in developing mutual understanding of portfolios and needs. We are enthusiastic about both the research and regulatory impacts of this relationship.

• EPA has reorganized itself along the paradigm of risk assessment, providing a way to better prioritize its activities, and suggesting that measured and evaluated risk, rather than cleanup to rule, may drive future regulatory actions.

I do not promise that these changes will offer immediate effect. What you should know is that we at the laboratories have heard, and fully accept, both the Departmental and Congressional message that these activities are to cost less, are to be brought to completion faster, and are not to be job programs at our sites. The elements of change that I have described are a necessary part of a broad process that will integrate basic and applied science, technology development and demonstration, transfer to industrial deployment, and continuous reexamination of the scientific and risk basis of regulation. This process must continue indefinitely. We have accepted the assignment of putting ourselves and the production sites out of the cleanup business as fast as possible, retaining the appropriate research role as the provider of new understanding and technology that will allow us to continually attack the baseline cost and schedule of this program.

Examples of Success

I want to cite several examples of recent accomplishments at Livermore that offer great potential to reduce cleanup cost in certain cases and that are strong candidates for export to other sites and implementation by American industry. I have picked these not because Livermore is unique but because I know them in detail.

• Dynamic Stripping - By combining electrical heating and steam injection applied one hundred feet below the surface of the ground, we have recovered a spill of 10,000 gallons of gasoline that was in contact with the ground water below our site. In what was basically a research and development experiment, the gasoline was recovered at a cost one tenth of that of conventional excavation techniques and in a time of nine months instead of the decades that pump and

treat would have required to remove this material from the gravel and clay mixture below our site. With the agreement of our regulators treatment at this site has been terminated and monitoring at six month intervals is all that now required. The technology has been exported and is currently being implemented at an industrial site in Southern California at a factor of three reduction in cost from our research application. Several military sites are being considered for cleanup with this technology at present.

• Accelerated Cleanup of the Livermore Site - The main LLNL site is an active Superfund site because of a trichloroethylene (TCE) spill resulting from operations when Livermore was a Naval Air Station and engine rework facility during World War II. The remediation with pump and treat planned in the present Record of Decision for the site is estimated to require between twenty and fifty years at a cost variously estimated to be between $300 million and $500 million. It is important for you to realize that the Baseline Environmental Management Report (usually referred to as the BEMR) that summarizes the current cost of cleanup of DOE sites has no estimate for the cost of ground water remediation since no methodology could be found to estimate one. The overall costs are literally unknown.

We are proposing an accelerated cleanup of our site using a combination of the thermal methods successfully demonstrated in Dynamic Stripping with bioremediation techniques we demonstrated last year in a joint project with DOE on a private site. This project has the potential to bring remediation to an end on our site in a five to seven year period. Actual site closure will depend on the regulations in effect at that time and the degree of residual monitoring and containment activity required by the regulators. In doing this project, we propose to involve a corporate partner whose responsibilities will include the technical assessment and economic evaluation of our work, and the development of a business plan to implement it at other sites. In discussions to date with parties interested in such a relationship, we have been told that one year into the Livermore project, they would be confident enough to bid the technologies at fixed cost at other sites. As trichloroethylene is the most common contaminant at both federal and industrial sites around the country, success in this transfer to industry could have great impact on cleanup costs nationwide. Our residual role in such a success would be in the continuing development of bioremediation and mobilization techniques for other classes of contaminants, leveraging both federal and corporate research support to add to an expanding corporate tool kit.

• The LUFT Study - We have recently completed and published a study of the threats to ground water posed by Leaking Underground Fuel Tanks. This study, commonly referred to as LUFT exemplifies exactly the partnership relationship I mentioned earlier. The study was jointly funded by the EPA and Mobil Oil Corporation (a 90/10 split) and executed by Livermore staff and faculty in industrial and risk assessment departments from four campuses of the University of California. Having sampled a data base containing characteristics

of several tens of thousands of fuel tank sites scheduled for remediation in California, the study came to the conclusion that once the leaking tank and the soil immediately around it were removed, further active treatment was unnecessary in most cases. In most cases, natural bioremediation processes will destroy the benzene component of the plume (the principal carcinogen) before it reaches water that will be used for human purposes. This simple $300,000 study is producing a rule change that will avoid a $1.5 billion cost to California taxpayers, and an equivalent cost to California property owners. The results of the study are not without controversy, the rate and extent of application of the rule change is still under debate, but the end consequences are clear. This study will produce remediation of risk rather than remediation to rule. Such a change in mindset will be necessary if we are to have environmental quality at a cost and on a schedule that the nation can afford.

Conclusion

I hope that I have convinced you that we have the attitude, the skills and the motivation to contribute to an acceleration in the schedule and a decrease in the cost of cleanup of federal sites, and to bring considerable benefit to industrial cleanup as well. I cannot offer you a silver bullet that guarantees a factor of ten reduction in these costs. I certainly believe that if we apply the scientific and technological skills of the national laboratories and bring in the implementation and process management techniques of industry, that major reduction may be possible in many of the cost components of cleanup. We are of the early stages of implementing the R&D, regulatory, and management changes necessary to solve this problem. Our systems and approaches should evolve from measured successes and failures. We are attacking a complex problem that was many decades in the making. Technologically, it is a challenge approaching that of creating the weapons systems that met the needs of the Nation through the Cold War. We certainly bring the same degree of commitment to this task.

I will be happy to answer questions or provide clarification of my remarks.

STATEMENT OF MAUREEN ELDREDGE, PROGRAM DIRECTOR, MILITARY PRODUCTION NETWORK

Ms. ELDREDGE. My name is Maureen Eldredge, and I am the Program Director for the Military Production Network. The Military Production Network is an alliance of over 40 national and local organizations representing the citizens and communities that have been most deeply affected by the Department of Energy's nuclear weapons production complex.

I appreciate the chance to speak before you today, and I also want to thank you for including the views of affected citizens in these proceedings.

Since it is getting fairly late, I will try to keep my comments very brief. I would first like to reinforce the opening statement made by Representative Hastings that there is both a moral and legal Federal obligation to remedy the legacy of the cold war. The workers, communities and citizens of the States that hosted the nuclear weapons production complex are veterans of this cold war and must not be abandoned. We urge Congress and the Federal Government to show their commitment to these communities by providing stable funding for environmental management and remediation.

Second, I think we must place the blame for the inefficiencies and failures of DOE's environmental management program where it must appropriately lie. The cost—plus contracting system has been a nightmare in terms of encouraging efficiency and responsible spending. While it may have had a value in the past, it is a new era, and we must move forward toward a system that is based on incentives for efficiency and rewards for performance.

We are encouraged by efforts within the Department to move forward with this system, but we remain concerned that DOE lacks sufficient management expertise to implement a new kind of contractor system effectively.

The compliance agreements and Federal environmental oversight are not the forces behind excessive costs in this program but in fact can be tools for improving efficiency and coordinating efforts. Compliance agreements with the States make the Government accountable to the people and are the only mechanisms by which State governments can carry out their mandate to protect the citizens. Those sovereign rights must be protected.

It was the failure to comply with environmental regulation in the past and the lack of State oversight that led to the tremendous mess that we face today. Let us not shift backward toward an era of self-regulation that got us to this crisis point.

We strongly support the recommendations of the recent Advisory Committee on External Regulation, that all safety matters in the nuclear weapons complex should be externally regulated, and we hope that this Congress can move forward rapidly with proposals to make that a reality.

Third, we are concerned over a number of items in the environmental management budget that bear only a faint resemblance to waste management cleanup or in fact produce enormous quantities of waste. One clear example is old bomb factories at the Savannah River site in South Carolina being renamed "waste management fa-

cilities" and operating under the guise of cleanup. And it is unfortunate that Mr. Spratt and Mr. Spence are not here to hear this.

Reprocessing 20 tons of spent nuclear fuel at the Savannah River facility would result in enough low-level and mixed waste to cover a football field with a pile 50 feet high. That does not include the high-level waste that results or the sacrete that results from that process. This is not a waste reduction or minimization process. This is a waste production process, and it should not occur.

Additionally, there are some items in the budget—and we could probably provide you with a list with a little more time—that should not be paid for out of EM if they should be funded at all. One clear example is the Waste Isolation Pilot Project in New Mexico. They fund a public relations staff of 37 people. One of the things that that staff has done is produced some really nice keychains that say "WIPP" on them. It might be a good PR project, but it is not cleanup or waste management, and it should not be funded by EM.

The Environmental Management program has serious and challenging responsibilities; if it is to meet those responsibilities, its programs and projects should be limited to waste and cleanup projects, and anything unrelated to that should be terminated.

Third, EM is responsible not only for legacy waste but for waste management and restoration of all ongoing DOE programs. In one estimate, ongoing programs will result in 1.4 million cubic meters of low-level waste—that is low-level radioactive waste—and 150,000 cubic meters of low-level and mixed waste. It seems that we have not really learned our lessons very well in terms of waste minimization. We agree with the National Academy of Science's recent recommendation in their report, "Improving the Environment," that a pay-for-services system should be instituted so that each program within the Department of Energy pays the Environmental Management program for their waste management services as an incentive to minimize waste and to further reduce waste production.

Finally, we believe, as affected citizens and communities around these sites, that public participation in decisions is crucial. Empowering the States, citizens, and local communities with land use planning decisions, priority-setting, and some budget oversight would inject a much-needed process for accountability into the system and help create a remediation program that is more acceptable to all and less subject to legal challenge.

Involving communities early and often enables stakeholders to help DOE make cost-effective decisions and provides for faster cleanup. We have already had examples of how this can happen at the Fernald site in Ohio, where the local site-specific advisory board has made some recommendations on residual risk levels and land use that will result in savings of millions of dollars and a much faster cleanup of that site. And this can happen across the complex. We do not believe that existing regulations or restrictions are preventing this from happening; we believe it is just the motivation factor in the Department of Energy that needs to be corrected.

I would be happy to answer any questions, and thank you for the time.

Mr. BATEMAN. Thank you very much, Ms. Eldredge.
Mr. Clark, we would be happy to hear from you now.
[The prepared statement of Ms. Eldredge follows:]

Military Production Network

A national alliance of organizations working to address issues of nuclear weapons production and waste clean-up

Member Groups

American Friends Service Committee
Denver, CO

Citizen Alert
Las Vegas, NV

Coalition for Health Concern
Ironton, KY

Concerned Citizens for Nuclear Safety
Santa Fe, NM

Environmental Defense Institute
Troy, ID

Fernald Residents for Environmental Safety and Health, Inc.
Ross, OH

Government Accountability Project
Seattle, WA
Washington, DC

Hanford Education Action League
Spokane, WA

Heart of America Northwest
Seattle, WA

Kinsfe Action Project
Albany, NY

Los Alamos Study Group
Santa Fe, NM

Miamisburg Environmental Safety & Health
Miamisburg, OH

Native Americans for a Clean Environment
Tahlequah, OK

Neighbors in Need
Englewood, OH

Oak Ridge Environmental Peace Alliance
Oak Ridge, TN

Pantantile Area Neighbors & Landowners (PANAL)
Pantantile, TX

Peace Action Education Fund
Washington, DC
Nashville, TN

Peace Farm
Pantantile, TX

Physicians for Social Responsibility
Washington, DC

Portsmouth/Piketon Residents for Environmental Safety & Security
McDermott, OH

Rocky Mountain Peace Center
Boulder, CO

Snake River Alliance
Boise, ID

Southwest Research and Information Center
Albuquerque, NM

STAND of Amarillo
Amarillo, TX

Tri-Valley CAREs
Livermore, CA

Western States Legal Foundation
Oakland, CA

Statement of

Maureen Eldredge
Program Director
The Military Production Network

before the

Subcommittees on Military Procurement and Readiness

of the National Security Committee

U.S. House of Representatives

March 21, 1996

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Executive Summary

The Military Production Network is an alliance of over 40 local, regional, and national organizations working to address issues of nuclear weapons production and waste cleanup. The success of the Department of Energy's (DOE) cleanup program is vital to us, the people that live shadows of the nuclear weapons complex. Our organizations represent many of the communities that live and work around these sites. They have borne the impacts of massive contamination of these sites and will be the people who must live with the results of national decisions.

The federal government's moral and legal obligation to cleaning up the legacy of the Cold War is clear. However the challenges, both technical and financial, to achieving this goal are significant. We believe that progress has been made in both characterizing the extent of contamination in the nuclear weapons complex and in moving forward with remediation. Changes to improve the efficiency of the Environmental Management (EM) program can be made within the existing regulatory and compliance agreement framework. As always, public involvement in the decision-making process is a crucial component of success.

Specifically we recommend the following:

1. Reform the contractor system by eliminating cost-plus contracts and replace them with performance and incentive-based contracts.

2. Reform the budget process to ensure budget stability, eliminate waste-producing programs, clarify the budget reporting system, require ongoing projects to pay for EM services, and include the public in budgetary oversight.

3. Preserve the integrity of the compliance agreements and strengthen health, safety, and environmental oversight of DOE. Institute external regulation of all aspects of safety at DOE's nuclear facilities and sites as soon as possible.

4. Ensure public involvement in all aspects of the decision-making process.

I. Introduction

Mr. Chairman and Members of the Committee, I appreciate this opportunity to appear before you today to discuss the Department of Energy's Environmental Management Program.

The Military Production Network is an alliance of over 40 local, regional, and national organizations working to address issues of nuclear weapons production and waste cleanup. The success of the Department of Energy's (DOE) cleanup program is vital to us, the people that live shadows of the nuclear weapons complex. Our organizations represent many of the communities that live and work around these sites. They have borne the impacts of massive contamination of these sites and will be the people who must live with the results of national decisions.

Our communities made great sacrifices of land, labor, and at times, their health, in the name of national security. We believe that the nation has both a moral and legal obligation to cleanup the legacy of the Cold War, not only for the local communities but for the health and safety of the nation. Integral to this effort is the need to include affected communities in the decision making process and ensure accountability at all levels of management. The FY97 Budget Request includes increased funding for Defense Programs while cutting funding for Environmental Management. It is clear that the Federal government has the resources to do the job. It is now a question of political will to carry it out.

II. Myths and Reality - What does the " cleanup" program do?

The Environmental Management (EM) program is responsible for a variety of tasks that are loosely, and somewhat inappropriately, termed "cleanup". Critics of the program chastise DOE for failing to provide dramatic examples of remediated property. This view fails to recognize that most of the Environmental Management program's work is in waste and facilities management, not remediation. A shrinking EM program will result in a "running in place" phenomena, where the program only has the resources to

maintain the facilities of the complex and contain the nuclear and hazardous wastes, without making progress on safe decontamination, decommissioning, and remediation.

Waste Management

Chief among DOE's Environmental Management program responsibilities is the stabilization and containment of nuclear and hazardous wastes in the nuclear weapons complex. The EM program is also responsible for managing special nuclear materials, such as plutonium, at several sites.

The production lines of the Cold War and the neglect of environmental considerations for 50 years have resulted in massive contamination throughout the complex. At four sites, Hanford, Washington, the Idaho National Engineering Lab, the Savannah River Site, South Carolina, and Oak Ridge, Tennessee, millions of gallons of lethal, radioactively contaminated material sits in trenches and tanks. The high-level waste tanks at the Hanford facility require constant surveillance because of the risk of an explosion that would spread radioactive contamination in a wide swath across western Washington, creating an environmental and human disaster on the scale of Chernobyl. Furthermore, these tanks are leaking contaminants into the groundwater and are threatening to contaminate the Columbia river. These problems are mirrored across the complex, as wastes that have been stored in containers only meant to hold them for a number of months have been left for years and are now corroding and leaking. From Oak Ridge, TN to the Idaho National Engineering Lab, from Rocky Flats, CO to Hanford, WA, the problems of contamination are real, dangerous, and difficult to resolve. The EM program faces a technically challenging task to simply stabilize existing wastes and prevent further contamination of the land and water around these sites.

Facilities Maintenance

The production of nuclear weapons depended on a manufacturing complex similar to other industrial activities but with a twist - the pipes, machinery, and buildings of almost all the facilities are contaminated with radioactive material. Many production

activities were halted mid-stream with little planning for closing and decommissioning the facilities. Maintaining contaminated buildings, many of them over 40 years old, requires extra security, monitoring systems, and safety procedures. DOE cannot begin to reduce the "mortgage" it pays to maintain these outdated and aging building and facilities unless it invests now to decontaminate and dismantle these buildings. For example, it costs over $130 million to provide security and safeguards for plutonium stored in eight buildings at Rocky Flats. This figure could be reduced substantially by constructing the safest possible consolidated storage facility, which requires a large initial investment. It is a classic case of short-term versus long-term thinking: if we invest more now, we will pay less in the long run. Budget planners who never look beyond the next few years would rather short-change the program now, since they may not be around when the real bill comes due.

Remediation

The third major component of the EM program is remediation. It is this work, the true "cleanup" in the "cleanup program" that offers hope to communities around these sites that their homes and lives will not always be threatened by the radioactive and hazardous contamination of the site. Yet remediation is less than a third of the EM program and suffers the most when the EM program is tightened. Waste management must occur, or tanks may explode. Facilities maintenance can't be halted since buildings may collapse. Regrettably, there is the perception that cleanup can be postponed without consequences. Yet delaying these actions increases long-term costs and puts DOE in the "cleanup" business in perpetuity. Progress in the remediation area is crucial, both to the credibility of the program and the communities living near the sites. Without sufficient resources, DOE will remain forever running in place, trying to keep the crumbling infrastructure and leaking wastes contained.

It should be noted that the FY97 Budget Request shows the Environmental Restoration (ER) account increasing above the Waste Management account. This is due in part to including the entire Rocky Flats Plant (RFP) budget within ER to provide budget

flexibility at that site, even though most of the RFP work could be more properly characterized as nuclear materials stabilization.

III. Making DOE's EM Program More Efficient

1. Reform the Contractor System by Eliminating Cost-Plus Contracts

The single largest source of waste in the Environmental Management program comes from the contractor system. The cost-plus contracting system, which pays contractors for all costs incurred, regardless of overruns and inefficiencies, does not provide sufficient contractor accountability nor incentives. In many areas the contractors appear to run the program, not DOE. This system results in widespread abuse ranging from perennial cost-overruns to excessive overhead charges. DOE costs for equivalent work run many times higher than the private sector or even other government agency actions, costs vary widely from site to site for the same action, and even normal services, such as airline tickets, cost DOE more. While State and local communities have been blamed for requiring "Cadillac" cleanups, in fact it appears that the contractor system encourages overly strict interpretation of regulations and reporting requirements which cost too much in time and money. This is in part due to the cost-plus system that pays for all work done, regardless of need or outcome, rather than an incentive based system that rewards efficiency and progress.

Eliminate Cost Plus Contracts

Contractor profits need to be closely tied to progress in cleanup and they must be held accountable for their work. DOE has begun significant work in this area and we are encouraged by their efforts at changing the contractor system. However, the current reform efforts have not yet proved to be effective at some sites. At Hanford, the addition of a Management and Integration contractor has not resulted in better integration and seems to reinforce the problem of inflexible budgets and poor communication between budget lines at the site level that leads to more inefficiencies. Contractor reform is also being tried at Rocky Flats. While attempts have been made to have the proper incentives and restrictions to ensure a more progress driven approach, the system for developing performance measures is not well defined and

DOE headquarters and field oversight is weak. Nonetheless, these efforts at reform are a welcome departure from cost-plus contracting and should continue. "Pay for performance" contracts will inject sorely needed accountability into DOE's contracting system. Further, "pay for performance" shifts the burden of cost overruns to the contractor and can eliminate excessive overhead charges by encouraging market-driven competition.

Institute Fixed Price, Incentive- and Performance- Based Contracts.
A 'pay for progress' approach must be instilled into the system. This can be done through performance-based contracts which may represent a spectrum of alternatives from traditional government owned, contractor operated cleanups to contractor owned and operated cleanups. Regardless of the model used, contractors must still be held liable for negligence. This burden should not be shifted to the taxpayer, as put forth in some reform proposals. Protecting contractors from liability resulting from their own negligence does nothing to improve the system and in fact acts as a disincentive for careful and safe operations.

Additionally, a reformed contracting system should meet the following criteria:

- Be a force for stabilizing local employment, not a mechanism to inappropriately displace workers.
- Improve worker safety, regulatory oversight, and public involvement.
- Maintain the integrity of the Compliance Agreements.
- Clearly define regulatory requirements and contract specifications and ensure that these are consistent across the complex.
- Provide for transparent (given procurement constraints) decision making processes, including defining regulatory requirements and defining contract specifications.
- Show cost effectiveness.
- Provide a budget profile that neither relies on large near-term expenditures nor shifts an inordinate amount of the program cost into the future.
- Encourage competition.

- Minimize the risk of failure. Where risks remain, those risks must be clearly defined and appropriately shared between contractors and DOE.

- Make use of program lessons that have been learned to date.

2. Reform the Environmental Management Budget Process

Budget Stability

A major problem in the Environmental Management program is ensuring the budget stability needed for long-term planning and investment. Conservatively estimated, environmental remediation of the complex will take at least 75 years and likely longer. Both government planning, efforts at contractor reform, and privatization efforts will not succeed if funding for cleanup is constantly in jeopardy. Congress and the Federal government must show its commitment to this national obligation by providing stable funding for the Environmental Management program. It is clearly not a question of available resources but one of political will. This is made evident by the recently released Presidential Budget Request for FY97 which adds $244 million to the Defense Program account while cutting funding for Environmental Management. The contamination of the weapons complex presents a real threat to the security and safety of our citizens and should be addressed with the same level of seriousness accorded other national security programs.

Compliance with environmental regulations at federal facilities should be funded as a mandated rather than discretionary activity. Currently under existing statutes the federal government quite literally expects that environmental compliance at DOE facilities will be regulated by the EPA and states as if DOE sites are private sector operations, but funded by Congress as if the legal mandates are actually discretionary programs. Obviously, a corporation does not have recourse to inform regulatory agencies that the board of directors chose not to fund legally required pollution control for the coming fiscal year. Changing to non-discretionary funding would put DOE on the same footing as private corporations and strengthen its commitment to cleanup. Another option would be funding the EM program on a three to five year appropriations cycle, rather than the existing annual appropriations. Barring either of

these solutions, Congress and the Administration must find an approach to meeting budget targets without gutting compliance agreements and the laws these agreements are based upon.

Set Up "Pay for Services" Systems

Currently the EM program is responsible for waste management and environmental remediation activities associated with all ongoing DOE programs. These ongoing programs have little incentive to perform their work in an environmentally responsible manner since all costs resulting from waste production are shifted to EM. DOE has estimated that 10% of the lifetime costs of cleaning up the complex results from ongoing programs. We concur with the National Academy of Sciences recommendation in their report "Improving the Environment" released last year, that existing programs should pay for the services of EM. This would provide an incentive for these programs to minimize waste and use appropriate technology.

Eliminating the Wolf in Sheep's Clothing

The size of the Environmental Management budget has made it an attractive place to go "shopping" for funds for unrelated projects. A number of programs that bear only faint resemblance to waste management and cleanup, or in fact produce enormous quantities of waste are now funded out of the EM line. If the EM program is to meet its true mission and responsibilities, these projects should be terminated or funded out of a more appropriate account.

For example, over 50% of the total lifetime costs of the cleanup program is due to reprocessing activities yet reprocessing is being restarted at the Savannah River Site (SRS) and the Idaho National Engineering Lab (INEL). Reprocessing is the chemical separation of radioactive materials from spent nuclear fuel. It was used in the past to produce plutonium and highly enriched uranium for use in the weapons program. Now, in a desperate attempt to maintain these outdated programs, they are being renamed "waste management" and funded out of the Environmental Management account. This is an outrageous practice which not only increases the pressure on the

EM budget but contributes even more high and low level radioactive waste to the problem. One estimate shows that running the canyons at SRS to reprocess just 20 tons of spent nuclear fuel would result in enough low level radioactive waste and hazardous and mixed waste to cover the length of a football field with a 50 foot pile of waste. Reprocessing is not a waste management program, it is a waste production program and should not occur.

Additionally, EM funds are being used to maintain several Atomic Energy museums and an overblown public relations staff at the Waste Isolation Pilot Project (WIPP) site in New Mexico. The WIPP PR staff is even considering buying a private plane to host tours of the facility, all paid for by EM funds. While there may be debate over the value of any of these projects, one thing is clear. The resources of the EM program are needed to do waste management and remediation. Activities not related to this work should not be funded out of this account.

Clean Up The Books

An important problem in assessing both the performance and progress of DOE's environmental program is the lack of clarity and consistency in the EM budget. The difficulty comes, in large part, with the continuing movement of projects and sites out of the Defense Programs (DP) part of the DOE program into EM. While funding for EM appeared to have increased by almost $200 million from FY95 to FY96, it received over $800 million in new responsibilities during the same time period, resulting in a real budget *decrease* of almost $600 million. This resulted from a shift of three sites, Savannah River, SC, Mound, OH, and Pinellas, FL, from DP sites to EM. Additionally, EM is responsible for all waste management activities associated with ongoing DP projects.

For clarity the DOE budget should be organized to include the following discrete categories:

a) Waste Management activities directly connected to the continued production of nuclear materials and maintenance of production facilities. The purpose of this category would be to clearly reflect the actual annualized cost of production activities. These activities should be paid for out of the Defense Program budget for each project.

b) Waste Management activities directly connected to environmental remediation and the decommissioning of formerly used facilities.

c) Maintenance of formerly used facilities. This category would include all costs associated with facilities slated for decontamination and decommissioning that have been transferred into the EM program. Funds used to provide safe maintenance of these facilities when they were in the Defense Programs part of the DOE budget would be transferred to EM and thus not compete against other EM programs for funding and human resources.

d) Environmental Restoration activities, including all remedial investigation, remedial action, closure and post-closure activities required by state and federal law.

e) Technology Development activities connected to providing better methods of environmental restoration, decontamination, etc. for EM purposes.

f) Long-term maintenance and security. Those costs associated with post-closure activities and other post remediation responsibilities (security, maintenance, etc.) required to protect public and workers from any residual hazards.

Public Participation in the Budget Process

Public oversight is integral to developing more intelligent and publicly acceptable solutions. Over its history, DOE has shown a dramatic inability to properly manage both its contractors and its budget process. While internal reforms are urgently needed to develop the necessary expertise within the Department, external review is available and can contribute to improving the effectiveness of the program. The contract process and budget development should be made as transparent as possible and reviewed by the Site Specific Advisory Boards (SSABs) or other appropriate public bodies. By involving the SSABs or an appropriate public body in oversight of cost estimates and project planning assumptions, excessive costs and rigid interpretation of regulations could be detected and eliminated. Additionally, independent audits of DOE's environmental programs could provide addition checks on the system. One concern with privatization efforts is that they may be used to limit access to information. The label "procurement sensitive" risks becoming the "classified for national security" problem of the future. This would hamper efforts to ensure contracts are structured properly and budgets are realistic.

IV. Environmental Regulations and Compliance Agreements

One of the most frequent criticisms of the EM program is that high costs result from compliance with environmental regulations and that the Federal Facility Compliance Agreements are inflexible. Nothing could be further from the truth. In fact, it is the failure to comply with environmental regulations and lack of state oversight in the past that caused the current cleanup problem and lead directly to the challenges we face today. The environmental regulatory regime should be strengthened, not weakened and gaps in coverage should be addressed. **We strongly support the recommendations of Advisory Committee on External Regulation that DOE should no longer be internally regulated. External regulation of DOE activities should be instituted as soon as possible.**

The cleanup agreements between the regulator, DOE, and the states provide a useful and flexible framework for addressing regulatory integration. They are not inflexible documents, but instead have been frequently renegotiated and can provide the basis for achieving many of the goals of regulatory integration.

Environmental Regulations Protect the Public

Failure to comply with environmental regulations has lead to outrageous scenarios, such as highly contaminated radioactive waste being dumped in trenches at Hanford, WA and the Idaho National Engineering Lab. In recent years, DOE has made great strides in moving into compliance with environmental regulations. Efforts by some in the Department and in Congress to exempt DOE from Federal Facility Compliance Act (FFCA) liability provisions are extremely objectionable. So too are proposals that would return us to the dark days of DOE self-regulation. DOE must be subject to federal law, oversight, and public scrutiny. **We fully support the recommendation of the Advisory Committee on External Regulation that all aspects of safety at DOE's nuclear facilities and sites should be externally regulated.**

Environmental regulations protect public health and the environment. Current law does provide significant flexibility within the program to do many things proposed by those

seeking regulatory reform For example, land-use planning is not only possible, it has been done under the existing laws and compliance agreements. The Site Specific Advisory Board (SSAB) at the Fernald site in Ohio used land-use considerations to propose a different residual contamination standard for a portion of that site when it became clear that existing standard of one in a million fatal cancer risk level would have resulted in a considerable amount of ecological destruction in addition to unacceptable short-term risks to workers and the public, caused by excavating and removing several million cubic yards of valuable top-soil. Consequently, the Task Force recommended a one in ten-thousand risk goal along with future land use limitations to provide an additional margin of safety. No laws were changed to allow them to make an alternative recommendation. By working with the local community and utilizing existing regulatory flexibility, significant progress will be made on the Fernald cleanup actions. What prevents this from happening at other sites is a combination of DOE and contractor resistance to working within the existing framework of law, not the laws themselves.

Preserve the Integrity of the Cleanup Agreements

Federal Facility Compliance Agreements make the Federal government accountable to the people. They represent the only mechanism by which state governments can carry out their mandate to protect their citizens. The Federal government must respect those sovereign rights. Rather than being overburdensome or rigid, these agreements have been the force moving the cleanup program forward. States have been willing to renegotiate their agreements repeatedly and milestones have changed so often, in some cases, that they are more like mile-snowballs, melting away under the budget process. Cleanup agreements provide precisely the type of framework needed to reform the cleanup program. While not perfect, these agreements are the only document at the site taking into account land use, risk reduction, public involvement, and regulatory oversight. As such, cleanup agreements are the logical framework on which to flesh out more comprehensive cleanup strategies. They should be considered assets to capitalize upon.

One clear example of the flexibility of these agreements is the recently renegotiated agreement for the Rocky Flats site in Colorado. While this agreement has many flaws, it highlights the ability of these negotiations to select lead regulators for specific cleanup actions. There is now a lead regulator for each major activity at the site. This agreement was reached without the need to change environmental regulations.

Gaps in the Regulatory Program

One area that remains a problem is coverage of special nuclear materials. Plutonium, uranium and other fissile materials are not regulated by existing environmental laws and as such, the compliance agreements at several sites cannot address them. Yet these materials represent some of the most dangerous problems in the complex. Despite efforts by the state of Colorado during the renegotiation, milestones in its compliance agreement regarding plutonium are not enforceable by the state since the state has no regulatory authority. Just as the compliance agreements can be used to integrate existing statutes, they should be used to ensure complete and consistent coverage of all risks to the public, nuclear and non-nuclear alike. DOE should be directed to include enforceable milestones of all special nuclear materials in the compliance agreements with all sites. In addition all aspects of nuclear safety at DOE sites and facilities should be subject to external regulation, including special nuclear materials.

Risk Assessment

Risk assessment should be understood as one of many tools used to make cleanup decisions. It is currently incorporated into the planning processes both under CERCLA and RCRA as a tool to better understand the potential environmental and public health consequences associated with a given waste site and the degree to which those risks can be reduced. However, the proposed use of risk analysis to gauge or guide national program priorities is scientifically unjustifiable and has generated widespread skepticism and resistance. Risk analysis is seen as the means by which the federal government would like to pry apart existing compliance agreements. Even with continuing technical improvements relative risk assessment can be highly subjective and therefore subject to abuse. Risk assessment has some value in ranking risks within one

site, but it is overly ambitious and problematic to use it to make comparisons between sites or to rank sites or remediation activities on a national basis.

Superfund Reform

Recent Superfund reform proposals show a disturbing trend towards reliance on institutional controls under the Remedy Selection sections. Given the long half-life of the nuclear contamination of the complex and the lethality of the these materials, reliance on fences, gates, and guards should be approached with extreme trepidation. Existing "institutions" of western civilization have been in existence a mere fraction of the hazardous life of the nuclear contamination that exists in the complex. We owe future generations a better answer to the challenges of cleaning up the nuclear weapons complex than a fence with a "keep out" sign.

While we have many concerns with current Superfund legislative proposals we believe it is inappropriate for this committee to attempt to make changes to that law using the Defense Authorization bill as the vehicle.

V. Public Participation Is Necessary for Success

The state, the public, and the Site Specific Advisory Boards should play a major role in decision making. Specifically, empowering these groups with land-use planning, priority setting, and budget oversight would interject a much needed process for accountability into the system. Involving the communities in critical decisions about the site also helps create a cleanup program that is more acceptable to all and less subject to challenge. For decades DOE has operated its nuclear weapons program in secrecy and without public oversight. It is time to move decision-making into the public arena and provide full disclosure of activities. Without this crucial component the credibility of the cleanup effort will suffer and legal challenges may further delay action at these sites.

While the SSABs have been used very successfully at some sites to achieve significant savings and generate reasonable land-use assumptions, there remains great variation in

credibility and function between boards at different sites. The SSABs at Hanford, WA, Fernald, OH, and Rocky Flats, CO, are relatively well respected and have been able to contribute significantly to cleanup decisions at those sites. In other places, most notably at the Idaho National Engineering Lab and the Savannah River Site, SC, the SSABs are fraught with conflict of interest and show little accountability or concern for responsible decision-making. The SSABs should be reformed to be more representative of the communities surrounding the sites and must be held accountable fore their actions, decisions, and recommendations. While SSABs should be considered a resource for getting public input, they should not be the only mechanism for achieving that goal. Additional public forums and involvement must be developed and utilized.

STATEMENT OF EDWIN H. CLARK, PRESIDENT, CLEAN SITES INC.

Mr. CLARK. Thank you, Mr. Chairman.

My name is Edwin Clark, and I am the president of Clean Sites, a not-for-profit organization established 12 years ago to help governments, private companies and communities find and implement efficient, effective and collaborative solutions to environmental contamination problems. I appreciate the opportunity to testify before you today.

Clean Sites has been involved in reviewing the cleanup programs at DOE and DOD sites in several different respects. At present, our most significant involvement is through an independent study of the progress in and management of the DOD program in response to a request from the Deputy Under Secretary of Defense for Environmental Security, Ms. Sherri Goodman. Our other major involvements have been in peer-reviewing cleanup plans at certain DOD facilities, organizing innovative technology cooperative partnerships at DOE and DOD facilities, and my personal participation on two committees established by the National Academy of Sciences to review the management of the DOE Environmental Management Program.

I will focus today on our DOD review. To help us in this study, we have established an advisory panel of high-level officials involved in implementing, managing, and analyzing cleanup programs in their own businesses to guide our efforts. This panel includes representatives of State regulatory agencies, industry, contracting and consulting, and the Federal Government.

Let me very briefly summarize our conclusions thus far. First, DOD has been very aggressive in identifying sites. The first step in managing a cleanup program is to determine how big the problem is. DOD has been very aggressive over the past 8 years in identifying the potentially contaminated sites for which it is responsible and, as Secretary Goodman said, now has over 24,000 sites.

The second conclusion is that DOD has been quick to make "No further action" determinations. Again, Secretary Goodman pointed that out. They have made over 10,000 "No further action" determinations, covering about 40 percent of the sites in the program.

The third point is that remedial designs and remedial actions are increasing rapidly since 1972. Although progress during the first years of the DOD cleanup program was uneven, since 1972, the Department has made significant and steady progress in the number of sites for which remedies are being designed or are underway. Between 1992 and 1994, for instance, DOD doubled the number of cleanups that they had completed.

The fourth point is that progress is being made at sites posing greater levels of risk. We analyzed the EPA database, which showed that DOD was making progress in working on these NPL-caliber sites, the most significantly contaminated sites.

The fifth point is that DOD appears to be completing remedial designs and remedial actions expeditiously. Again, going into the EPA information system, we looked at how long it took DOD, other Federal agencies, and the private sector to complete remedial actions, remedial designs, and some of the studies, and DOD com-

pared quite favorably with the private sector and the other parts of the Government.

The sixth point is that DOD has adopted a reasonable approach to evaluating the relative risk of their sites. In the past, one weakness in DOD's inventory of sites was that the Department had little information on the risk these sites actually created. Their recent implementation of the relative risk site evaluation framework has filled this gap. We found this to be a reasonable qualitative methodology for ranking relative risk and helping to establish more rational priorities.

Seventh, the quality of the information that DOD is presenting you is improving. Our review found some apparent significant inconsistencies and possibly quality problems in the information DOD has presented about its program in past annual reports. The Department, however, has taken a number of steps to correct these problems and improve the accuracy and consistency of its information. Many of these improvements are already manifest in the more recent annual reports and others that are in the process of being implemented.

In my involvement in the National Academy of Sciences committee, we found that DOE similarly had made significant improvements. But to say that both agencies have made significant improvements does not mean that they do not have some very great needs and opportunities for making others.

Some of these we might point out are, first, adopting a more collaborative team approach to cleanup, an approach which gets the regulators, the landowners, both Federal and State agencies, and the local community working together to agree on how the site should be cleaned up.

At one private Potential Responsible Party [PRP] site where we demonstrated such an approach for EPA, we found that it reduced the time required to complete the remedial design and remedial action by about 60 percent from the original schedule.

DOD is already using this approach in the BRAC Program, but I believe that both agencies could benefit from taking the approach uniformly through their cleanup programs.

The second recommendation——

Mr. BATEMAN. I wonder if you would mind suspending, Mr. Clark? We are at the point where we are going to have to run to catch the vote. We will return just as quickly as we can do that, and I very much hate to interrupt you and to delay you all further.

Mr. CLARK. Well, I can promise that I will finish up as quickly as possible.

[Recess.]

Mr. BATEMAN. The joint subcommittees will resume, and we would be happy to hear further from Mr. Clark.

Mr. CLARK. Thank you, Mr. Chairman.

Our second recommendation is to make future land use the basis for cleanup decisions at Federal facilities. This is a position we have been supporting for a long time. Most stakeholders now accept it, and it is the basis for getting substantial efficiencies and reductions in cleanup costs.

The third recommendation is sort of an echo of Dr. Cochran's point. The Departments ought to support innovative technology

demonstrations at Federal facilities. They are doing this now, and we would strongly encourage you to continue to endorse that approach.

The fourth is perhaps a general one, and some of these have already been mentioned, but we would suggest that the Congress and the agencies do not inadvertently establish perverse incentives. No program, either private or public sector, shall be implemented efficiently if the incentives facing the people—the managers, the staff, the contractors—involved in the program do not reinforce that program's goals. Often, the best-intentioned policies, decisions, or legislative requirements, and even information requests, can establish strong incentives that operate perversely with respect to these goals. This is a point the National Academy of Sciences committees emphasized in their review of the DOE programs. One major point was the one about who should be paying for waste management within DOE, that that is a perverse incentive to the facility managers. It is also a point that Clean Sites is emphasizing in its DOD management review.

And finally, a point which I would like to emphasize to your committee—be very careful that the requirements and restrictions you impose on the agencies do not create incentives that result in more delay and more expensive cleanups.

Mr. Chairman, we appreciate the opportunity to testify before you, and we would be happy to answer any further questions.

[The prepared statement of Mr. Clark follows:]



CLEAN SITES®

Testimony Before the

Committee on National Security

Subcommittee on Readiness and
Subcommittee on Procurement

United States House of Representatives

by Edwin H. Clark, II

President
Clean Sites, Inc.

March 21, 1996

INTRODUCTION

Chairman Bateman, Chairman Hunter, and Members of the respective Subcommittees, my name is Edwin Clark. I am the President of Clean Sites, a not-for-profit organization established to help governments, private companies, and communities find and implement efficient, effective, and collaborative solutions to environmental contamination problems. I appreciate the opportunity to testify before you today to present our views on cleanup programs managed by the Department of Defense (DOD) and the Department of Energy (DOE).

Clean Sites was formed in 1984 by a coalition of industry and environmental leaders and former senior government officials for the purpose of accelerating and increasing the efficiency of hazardous waste cleanup -- a central issue in today's hearing. With a Board of Directors comprised of representatives of business, academic, public service (at the Federal,

state, and local level), and environmental interests, C ean Sites' efforts to enhance the cleanup process include conducting policy analyses, providing strategic environmental planning services for organizations and technical project management services at sites, and mediating and allocating cleanup costs among potentially responsible parties (PRPs). Clean Sites conducts peer reviews of proposed cleanup actions for individual commands and installations, and facilitates public-private partnerships to demonstrate innovative technologies at Federal facilities. For instance, just recently, I served on the National Research Council panel which concluded a comprehensive review of the Department of Energy's Environmental Management program.

BACKGROUND

The United States continues to be faced with the substantial challenge of cleaning up a hazardous waste legacy created by decades of inadequate attention to the problems caused by hazardous waste disposal. Few realized the magnitude of this challenge when Congress enacted the original Superfund statute in 1980. One of those few was DOD, whose environmental restoration program (then called the "Installation Restoration Program") could be traced back to the mid-1970's.

After Superfund was enacted, it soon became clear that Federal agencies were responsible for contamination at a large number of sites on their facilities. At that time, the Defense Department stood out because of the number of contaminated sites for which they were responsible and their early efforts to begin addressing the problems associated with those sites. As a result, in 1984, the Defense Environmental Restoration Program (DERP) was created and funded by a special account solely dedicated to DOD cleanup activities.

Many lessons can be learned from the past and present management and implementation of the DERP. As DOD's cleanup program has evolved, efforts have been made to integrate procedural efficiencies, and risk reduction and cost-effectiveness philosophies into DERP management. In order to expand on DOD's commitment to excellence and to continuously improve management and implementation of the DERP, Ms.

Sherri Goodman, Deputy Under Secretary of Defense (Environmental Security), asked Clean Sites to conduct an independent review of cleanup program execution.

CLEAN SITES' INDEPENDENT REVIEW OF DOD CLEANUP EXECUTION

Currently, Clean Sites is in the process of completing the first phase of this independent review. The purpose of Phase 1 is to evaluate DOD's performance in environmental restoration and provide an independent determination regarding the progress DOD has made in executing its cleanup program. To guide our efforts, Clean Sites appointed an advisory panel of high-level officials involved in implementing, managing, overseeing, and analyzing cleanup programs. The panel includes representatives of state regulatory agencies, industry, contracting/consulting, and the Federal government.

Very briefly, our conclusions are that:

- **DOD has been very aggressive in identifying possibly contaminated sites;**
- DOD has been able to resolve the situation with many of these sites by making rapid *no-further-action* determinations;
- **Since 1992, DOD has significantly increased the rate at which it is completing remedial designs (RDs) and remedial actions (RAs);**
- **The Department is making progress in cleaning up sites posing the greatest level of risks;**
- **According to the Environmental Protection Agency's (EPA) data, the length of time it takes DOD to complete remedial designs and remedial actions compares quite favorably with other agencies and the private sector;**

- **With the implementation of their new relative risk site evaluation system, DOD has filled a significant gap in the information they needed to define the magnitude of their cleanup program and establish cleanup priorities;**

- **The Department has obligated most of their cleanup funds rapidly, and their outlay rates compare well with other DOD programs;**

- **The Department is undertaking a number of steps to ensure that the public is being provided with relevant and accurate information regarding the magnitude and progress of their cleanup program.**

Clean Sites reviewed a variety of information in performing the analysis and incorporated the insights of the advisory panel into our analytical process. We reviewed DOD's Annual Reports to Congress for fiscal years 1986 through 1994, DOD's Relative Risk Site Evaluation primer, information on obligation and outlay rates, and EPA data on National Priorities List (NPL) sites. Our findings indicate that generally, DOD has improved its performance and management of the cleanup program over the past several years.

1. DOD is Aggressive in Identifying Sites

The task facing the Deputy Under Secretary of Defense (Environmental Security) is a formidable one. In terms of the number of contaminated or potentially contaminated sites to be addressed, DOD arguably is responsible for the largest cleanup program in the world. Despite this distinction, DOD continues to address concerns related to potential unknown risks by aggressively identifying sites for which it is responsible (or potentially responsible). For example, between 1986 and 1994, the number of sites in DOD's cleanup program grew from approximately 4,000 in 1986 to over 24,000 in 1994 (see Figure 1). This represents a 600% growth in the size of DOD's program. By contrast, the number of sites in EPA's Superfund program grew by 65% during the same time period.

2. **Quick No-Further-Action Determinations**

One measure of the progress that DOD is making in its cleanup program is reflected by the efficiencies they build into their system. One prominent example is DOD's ability to quickly assess, and if necessary, eliminate, the potential risks and hazards posed by a site. The site subsequently is placed into the *No-Further-Action* (NFA) category. In total, we found that DOD has made over 9,000 NFA determinations -- approximately 37% of the total number of sites in the program.

A number of NFA determinations are made after the study phase, while others are made after small-scale cleanup efforts. Efficiently dealing with such a large number of sites allows DOD to direct scarce resources to more pressing cleanup concerns. Thus, progress is made on two fronts: 1) actions at a large number of sites can be characterized as complete; and 2) more attention can be paid to higher risk sites. Additionally, the perception that a large number of contaminated sites continue to degrade the environment on DOD facilities has diminished significantly.

3. **Remedial Designs and Remedial Actions are Increasing Rapidly Since 1992**

To stakeholders in the DOD cleanup process, the number of remedial actions completed is the most telling statistic for conveying DOD's progress in the DERP. How many sites have been cleaned up this year as compared to last year? How many sites are presently in the RA phase? How many DOD sites have been cleaned up? These are questions often put before DOD.

We discovered two significant points during the course of our review. First, the number of RDs and RAs completed and underway has steadily and rapidly increased since 1992 (see Figure 2). For example, between 1992 and 1994, the number of completed remedial actions grew from 410 to 800, almost a 100% increase. Second, the information collection and reporting procedures have improved markedly since 1992. Prior to 1992, the data for several years displayed fluctuations in the numbers of RDs and RAs completed (e.g., the cumulative number of actions complete were less in year two than in year one). This

made it extremely difficult for DOD to communicate success stories and progress to Congress and the public. Any inconsistencies resulting from data collection efforts appear to have been eradicated by Ms. Goodman and her staff. The attention paid to ensuring the accuracy of cleanup program information is a worthy investment. Now, the progress that is being made in the field can be presented accurately, and, progress has been made by DOD in managing the information system for the cleanup program.

4. Progress Made at Sites Posing Greater Levels of Risks

Part of our analysis focused on DOD's NPL sites, which presumably are the sites posing the greatest risk to human health and the environment. It is the NPL sites that receive a higher level of attention from both DOD and the regulators, and consequently receives a greater percentage of funds than the non-NPL sites. Using EPA's information from 1987 and 1995, we created "pipelines" that depict the various milestones in the cleanup process (i.e., Remedial Investigation/Feasibility Study (RI/FS), Record of Decision (ROD), Construction Underway, and Construction Complete) to determine how many sites DOD had moved through the cleanup process (see Figure 3).[1]

The results show significant progress by DOD in placing sites in and pushing sites through the cleanup process. For example, in 1987, there were seven DOD sites in the RI/FS (study) phase. In 1995, the number increased to 138 sites. In 1987, DOD had construction underway and complete at two sites and one site respectively. In 1995, there were 86 constructions underway and 54 complete. These numbers clearly indicate that DOD is committed to mitigating risks at the higher priority sites and that this commitment is manifested in the information on NPL sites collected by EPA.

[1] It is important to note that DOD and EPA account for number of sites and facilities differently. These differences lead to different totals, but, should not lead to significant differences in measures of program performance.

5. **DOD Appears to be Completing Remedial Designs and Remedial Actions Expeditiously.**

During our review, we searched EPA's database on NPL sites to determine whether DOD was taking excessive amounts of time to complete the various stages of the cleanup process. The available information, although not definitive, indicates that they are not (see Figure 4).

The average amount of time required to complete a site remedial investigation and feasibility study (RI/FS) was approximately the same for DOD, other agencies, and private parties. The amount of time required to complete a remedial design was substantially less for DOD than other federal agencies, and particularly, private parties. The amount of time required to complete the actual cleanup was approximately the same for DOD, other federal agencies, and private parties.

These comparisons are only indicative because they include those sites or actions which have been completed. The significant delays may be limited to those sites which have not been completed. However, these data do not support the common conception that the government agencies are very inefficient in undertaking their cleanups. Indeed they indicate that DOD may be relatively efficient in this respect even though it has to deal with more requirements and delays than the typical private sector site.

6. **DOD is Emphasizing Relative Risk Reduction**

The most striking aspect of DOD's cleanup program is its sheer magnitude. The magnitude and complexity of DOD's program led one of the industry representatives on the advisory panel to say, "Now I don't feel so bad about my company's cleanup problems."

The challenge facing DOD is to address its ever increasing cleanup obligations in a time of tightened Federal budgets. Like other entities with large cleanup programs, DOD has been criticized often for not turning all of their attention to the worst sites, or to those posing

the greatest risk to human health and the environment. To meet this challenge, DOD developed and is implementing the Relative Risk Site Evaluation (RRSE) framework.

The RRSE framework is a conceptual tool being used throughout DOD to assess relative risk at sites or areas of concern in the DERP. It will be used in setting priorities. It will not substitute for baseline risk assessments, nor is its purpose to place sites into the NFA category. The RRSE is a qualitative evaluation of a site's relative risk at a point in time based on three factors: 1) Contaminant Hazard Factor; 2) Migration Pathway Factor; and 3) Receptor Factor. These factor ratings are based on quantitative evaluations of contaminants and qualitative evaluations of pathways and human and ecological receptors in the three media most likely to result in significant exposure: groundwater, surface water/sediment, and surface soils.

Use of the RRSE framework establishes a consistent approach to sequencing activities at DOD sites. There are many competing priorities among contaminated sites across DOD. The RRSE provides a reasonable qualitative methodology by which to cohesively manage priority setting and track relative risk reduction from year to year. It is flexible and applicable to a wide range of sites, and allows for meaningful stakeholder involvement in determining the relative risk posed by individual sites on an installation. Although the RRSE framework currently does not support estimates of actual risk reduction or cost-effectiveness, it is a tool that DOD can use both to make and show progress.

7. **Obligation Rates are Relatively High**

One measure of progress DOD has attempted to use is obligation and outlay rates. In the past, such a measure may not have provided an accurate picture of program performance. In previous years, the Defense Environmental Restoration Account (DERA) apparently did not have its own targets for obligations and outlays. The target rates used for comparison were borrowed from other DOD programs (e.g., real property maintenance, research and development) that are not necessarily similar to the DERP. Factors unique to the cleanup program (e.g., involvement from regulatory agencies, projects governed by legal agreements,

unknown field conditions), may make the comparison between DERA and Base Realignment and Closure (BRAC) obligation and outlay rates to other DOD accounts inappropriate.

Upon reviewing the available information on obligation and outlay rates, Clean Sites found that the obligation rates for both DERA and BRAC were relatively high; DERA rates were higher than BRAC. The higher obligation rate of DERA is a function of the attributes of the account itself. The money appropriated to DERA expires one year after it is distributed to the Military Departments by DOD. As such, the incentive is to obligate the money within that year or lose it. The BRAC funds expire in five years, and, the mission of BRAC differs in that BRAC environmental funds cover a broader scope of activities, such as compliance.

Ambitious target rates have been set for DERA and BRAC outlays. For DERA, outlay rates achieve or fall just below the target outlay rates. This reflects consistency in moving sites through the cleanup process. Outlay rates for BRAC are generally below the target rates, although the reasons for this are not clear.

8. **The Quality of Information is Improving**

In response to legislative requirements, the Department of Defense has published an annual report to Congress for the past 10 years. These reports focus on defining the magnitude of the problem that the Department faces in its cleanup program. The data for these reports is obtained primarily through annual "snapshots" where the Secretary's office asks each of the services and facilities to identify the number and types of sites they have, how much they think it will take to cleanup those sites and where they are in the cleanup process.

These data are quite appropriate for defining the magnitude of the problem. The only major piece of information that had been missing in the past was an estimate of the amount of human health and environmental risk resulting from the contamination. The implementation of the relative risk site evaluation framework should fill this gap.

As part of our study, we compared the information contained in these reports from 1986 to 1994. As indicated above, we found significant inconsistencies in the information reported from one year to the next -- particularly in the period from 1986 through 1991. There would be substantial differences in the number of actions underway or completed from one year to the next. These inconsistencies appeared to exist at the installation level as well as in the DOD totals.

The Department, however, has taken a number of steps to correct these problems and to improve the accuracy and consistency of the reporting. Many of these improvements are already manifest in the more recent annual reports, and others are in the process of being implemented. In addition to the improvements described above, these modifications should significantly improve the quality of the information DOD provides on its program.

The Department still faces some challenges in its information system. One is that the current system, though apparently quite adequate for the purpose of defining the magnitude of the cleanup problem, is less successful in providing information about how well the cleanup is progressing or how efficiently it is being managed. The Department has asked us to work with them to improve the system with respect to these deficiencies.

A second challenge relates to the command structure within the Department of Defense which may not facilitate information collection and management activities. The Office of the Deputy Under Secretary of Defense (Environmental Security) (ODUSD(ES)) does not execute cleanup projects in the field. This mission is carried out by the individual military components (Army, Navy, Air Force, Defense Logistics Agency, Corps of Engineers for Formerly Used Defense Sites). Therefore, while it is the responsibility of ODUSD(ES) to collect and report cleanup program information, they are wholly dependent on the military components to provide the information. However, the military components, installation supervisors, and individual project managers may not fully appreciate the importance of providing consistent and accurate information to ODUSD(ES).

Because of these organizational issues, ODUSD(ES) must operate within a system where it is not clear which incentives drive specific presentations of information on the part the military departments, installations, or project managers. For instance, the base commander is, quite reasonably, likely to be more focused on his or her military mission than on cleaning up the problems caused in the past. In this case, the commander may see the cleanup program and requests for information as a low priority. Other commanders, however, may place a much higher priority on these programs, and in some cases (this appears to be particularly common at DOE facilities) the base personnel may see the cleanup program as a major justification for their continued employment. Each of these different scenarios provides different incentives to the installation level personnel in managing the program and reporting their efforts.

Finally, in view of the amount of data as well as all the issues discussed above, ODUSD(ES) faces a significant challenge in ensuring that the data are of high quality. The need for good quality assurance and quality control (QA/QC) is often overlooked in such a system. Particularly in view of current budget limitations, there is a tendency by Congress, OMB, and others to reduce the amount of resources devoted to this function. We are concerned that such reductions could result in serious degradation of the quality of the data provided to Congress and the public about the progress of the DOD cleanup program.

POSSIBLE ENHANCEMENTS FOR THE DOD CLEANUP PROGRAM

In reviewing the management of both the DOD and DOE cleanup programs, I have seen the needs and opportunities for improving both. Superfund reauthorization presents one such opportunity. It is not clear, however, whether the Superfund debate will move forward this session. For this reason, Congress may want to consider actions that would be helpful to Federal facility cleanup programs, yet would not negatively affect the reauthorization process. Some of the improvements which we believe could help the programs include:

1. **Adopt a Team Approach to Cleanup**

I believe that DOD and DOE would benefit from adopting a "team" approach to conducting all cleanups at Federal facilities. Unlike other DOD programs, a site cleanup project cannot proceed without the concurrence of multiple regulatory agencies, usually the EPA and a state environmental agency. At various stages in the process, studies or other documents must be reviewed and concurred with by regulators. Lack of communication is inherent in the process, which ultimately leads to tension between the parties. The solution is to create a process whereby all parties work together to accomplish the mutual goals of cleaning up sites.

Currently, the Defense Department is implementing a "team" approach in the BRAC program. A Base Closure Team (BCT) comprised of military departments, regulatory agencies, and contractor representatives is formed at the beginning of the effort and works together to effectuate cleanup. This team approach fosters communication and understanding of issues and positions, and builds trust and mutual respect among the team members. Clean Sites, under a cooperative agreement with EPA, demonstrated this team approach at a private PRP NPL site. Due to the reasons outlined above, the time to complete the RD/RA was reduced 60% from the original schedule.

2. **Make Future Land Use the Basis for Cleanup Decisions at Federal Facilities**

A problem with the current Superfund statute is that it does not require the projected future use of a site to be considered when devising a cleanup strategy. The future use of a site directly affects selection of cleanup standards, remedy, and, ultimately, cost.

In our 1990 report entitled *Improving Remedy Selection*, Clean Sites recommended that future land use be considered early in the cleanup process. Such consideration, in consultation with other stakeholders (including the local community), allows for cleanup objectives to be established at the outset, which saves time and money spent negotiating over cleanup standards and remedy selection. This approach is applicable to private sites, but even more so at Federal facilities. Future land use has been recognized as a major determinant in

cleanup actions and Clean Sites believes the Subcommittees on Procurement and Readiness can reinforce this trend by endorsing early consideration of future land use in the cleanup process at DOD sites.

Land use planning at DOD and DOE installations is a major function. In this respect, installations are similar to cities and towns. The planning process is dynamic and forward looking, and incorporates future plans related to a particular installation's military mission. In addition, with the exception of BRAC sites, DOD installations will remain under the control of the individual military departments. It is not cost-effective nor does it make sense, for example, to remediate a site located in the middle of an artillery range to residential levels.

DOD and DOE installations operate more like industrial facilities than anything else. They are also home to many of the men and women who serve this country. Thus, some situations will call for industrial cleanup levels, while others will require residential levels. Clean Sites suggests that cleanup can be accomplished more effectively and efficiently when considering future land use early in the process.

To that end, Clean Sites also supports providing DOD and DOE with the authority to sell or lease parcels of property. If the future land use has been considered and the appropriate provisions prohibiting certain uses are included in the transfer documents, the agencies should be able to support and promote the economy of the local community in an environmentally responsible manner. It is imperative, however, that proper checks and balances are included in any process that involves turning over military property for private sector use.

3. Support Innovative Technology Demonstrations at Federal Facilities

Congress should endorse full-scale demonstrations of innovative technologies at Federal facilities. Despite the many problems associated with Federal facility sites, they present at least one very important opportunity for making cleanups more efficient -- use as a test-bed for innovative remediation technologies. Clean Sites, under a cooperative agreement

with EPA's Technology Innovation Office, has been facilitating public-private partnerships for demonstrating innovative technologies at DOD and DOE facilities. We are facilitating seven public-private partnerships.

There are two primary benefits to endorsing such demonstrations. First, Federal facility sites and associated contaminants fall into fairly discrete categories. For instance, there are large numbers of fire training areas, fuel spill areas, landfills, and the like, at DOD sites. This scenario is ideal in that a demonstration can occur, for example, at one of the many sites with TCE contamination, and the results applied across the rest of the sites with similar conditions. Except for the private PRP, for example, that is responsible for contamination at several gas stations, that economy of scale does not exist outside of Federal facilities, and in particular, DOD.

The second benefit accrues as a result of sharing expertise and pooling resources on the part of public and private sector representatives to determine the applicability of certain technologies for certain types of sites. Conducting field-scale demonstrations under the auspices of a public-private partnership provides national and local regulatory agencies, as well as private PRPs, with an opportunity to obtain first-hand cost and performance data. This information can then be disseminated through a large and presumably well-connected network so that the technology becomes more readily acceptable faster than would otherwise be the case. The ultimate effect is that cleanups become cheaper, faster, and procedurally more efficient.

4. Limit NPL Listings at Federal Facilities to NPL Caliber Sites

Clean Sites supports limiting Federal facility NPL listings to discrete sites on the installation. In most instances, there are one or two sites on a facility that may warrant listing on the NPL. The practice, however, has been to list the entire facility on the NPL. This creates a burden on facility managers, cleanup project managers, regulatory agencies, and the cleanup programs.

This practice has led to non-NPL caliber sites (e.g., underground storage tanks) being treated as NPL sites. Notwithstanding the fact that these sites could be addressed under other Federal and state laws which are designed specifically for that site or situation, these sites now fall under the DERP, which is consistent with the Superfund cleanup process under the National Contingency Plan, a process that is much too elaborate for most of these sites.

The greatest burden created by fenceline-to-fenceline NPL listings are on resources, both human and monetary. Fenceline-to-fenceline NPL listings exponentially increase the number of sites that site project managers must account for in their program. Not only must these sites be cleaned up under a burdensome process, but the cleanup must also be accomplished pursuant to Federal Facility Agreements (FFAs) that impose legally enforceable deadlines. Such listings also opens the vault holding DERA funds. Very often, NPL sites and sites governed by FFAs receive higher priority for DERA funding.

Lastly, some of the sites that are "DERA-eligible" were the result of the past actions of a current facility operation. Care should be taken to ensure that the true cost of an operation or program on a Federal facility is shouldered by the responsible operation or program. Making these sites eligible for DERA funding may act to externalize the cost of waste management and cleanup for that activity. This creates a perverse incentive similar to the one present in the DOE Environmental Management (EM) program. The entity or activity responsible for the contamination or waste generation should be responsible for paying for the consequences.

5. **Eliminate Perverse Incentives**

The best plans and programs have little chance of being implemented efficiently and effectively if they do not incorporate the appropriate incentives. In government agencies, the incentives acting on employees and contractors often are against the program's goals. I mentioned earlier the incentive problems that can be caused by an information collection system.

Observers have frequently pointed out that cost plus-fixed fee contracts that government has traditionally relied upon provide no incentive to reduce costs. Both the Department of Defense and the Department of Energy should be congratulated for the progress they have been making in moving to more efficient, performance based contracts.

One of the most obvious examples of a perverse incentive currently operating is found in the DOE EM program. The Energy Department owns and operates a variety of facilities that produce waste. This waste must properly be managed; an expensive proposition, particularly when dealing with DOE waste. Under the most common circumstance, the entity or facility responsible for producing the waste is also responsible for its disposal, and paying for the disposal costs. This internalizes the cost of waste management and disposal and creates incentives for the waste producer to minimize its waste production. At DOE, the cost of managing the waste produced by the various facilities is borne by the EM office. Thus, the DOE facilities have little incentive to make the effort to reduce either the amount or toxicity of their wastes. This is someone else's problem.

6. Recognize the Value of the Investigation Phase

One question that is constantly raised when evaluating cleanup programs is, "Are we spending too much time and money on investigations and too little on actual cleanup?" Many seem to immediately answer "YES" to that question. It is not clear that such is always the case.

Overall, the investigation phase is extremely important. It sets the parameters for the actual cleanup, if any is required, and can save large amounts of money in the process. The remedial action or construction phase of the cleanup process generally is the most cost-intensive phase. "Moving dirt" is expensive. If the investigation phase was limited based on the notion that we are wasting too much time and money analyzing the problem, the likely result would be a greater waste of money.

Arbitrary requirements that cleanup program managers spend a certain percentage of its funds on "moving dirt" creates several types of perverse incentives. The first is that it discourages further analyses and reviews even when they could lead to significant cost savings. Clean Sites conducted a number of "peer reviews" for the Air Force which resulted in them saving several millions of dollars in cleanup costs at the few sites we reviewed. The Air Force estimated that they saved approximately ten dollars for every dollar they spent on these reviews.

When I was a young engineer, I worked for a very good consulting firm that had the assignment of designing a spillway for what was then the world's largest dam, which was being built in Pakistan. We did a very good job, but our design was reviewed by the consulting firm that was responsible for the overall dam design, the general consultants to the government of Pakistan, and by the consultants for the World Bank that was financing the project. Initially, I thought that these reviews represented a great waste of money, however, each one ultimately saved money by identifying design improvements.

Such requirements can also create incentives, similar to those that exist in cost plus-fixed fee contracts, for eschewing cheap solutions for expensive ones. They can be particularly detrimental to the development of innovative technologies that will ultimately save money. Not only may the requirements discourage expenditures on the technology development (if such efforts are not included in "moving dirt"), but the ultimate adoption of the innovative technology may cause a violation of the arbitrary caps because of the fact that they are cheaper.

Finally, a common way that organizations respond to such incentives is to spend money on the "easier" investments, allowing the more complex and possibly more important investments to languish. For instance, in the early years of EPA's construction grants program, there was an incentive to spend as much money as possible on construction. In response, the agency emphasized investment in sewers rather than wastewater treatment plants

because they could be built more quickly. Such a focus did little to improve water quality and may have actually resulted in it getting worse.

Because of such perverse incentives, Clean Sites suggests that Congress be very careful about establishing arbitrary requirements about how the cleanup monies should be spent.

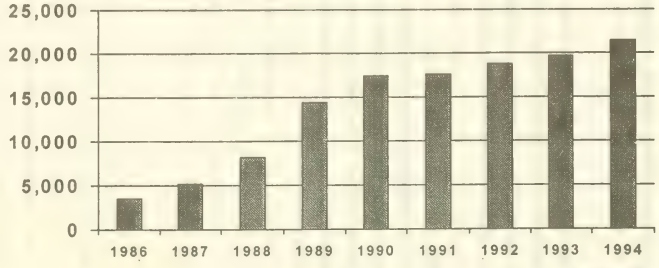
Our impression is that DOD has avoided excess studies. This is supported by the information presented above on how many no-further-action determinations there have been. Many of these have involved limited studies, perhaps supplemented with a small removal action. This is the type of response we believe that Congress should be encouraging.

CONCLUSION

In closing, I would like to thank both Chairman Hunter and Chairman Bateman for this opportunity to address your respective subcommittees on our ongoing independent review of the DOD cleanup program. Clean Sites looks forward to assisting you in your efforts related to Federal facility cleanup programs. I would be happy to answer any questions you might have at this time.

FIGURE 1

- **DOD has been aggressive in identifying sites**
 - ✓ Over 24,000 identified by 1994
 - ✓ Program growth 1986 - 1994 DOD = 600%
 EPA = 65%

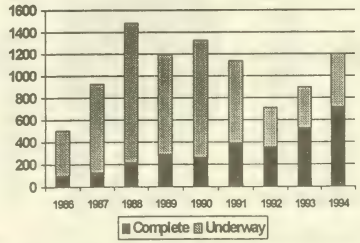


CLEAN SITES

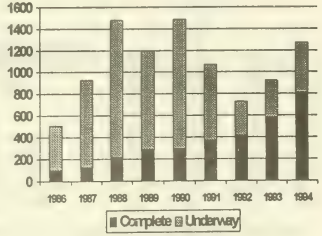
FIGURE 2

- **Remedial actions and remedial designs increasing rapidly since 1992**

RDs



RAs

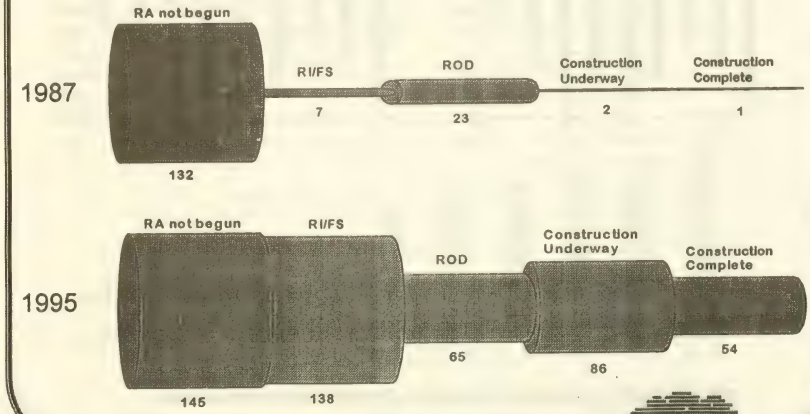


CLEAN SITES

FIGURE 3

- **DOD Making Progress on Most Contaminated Sites**

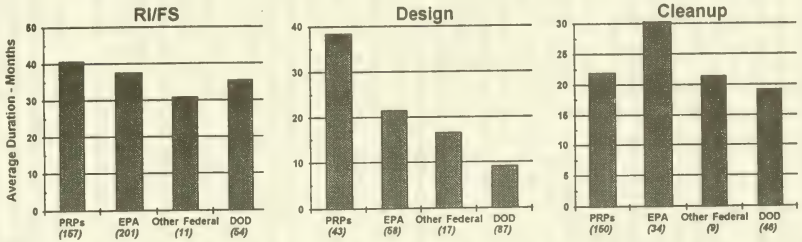
(NPL Operable Units in 1987 and 1995)



CLEAN SITES

FIGURE 4

- **DOD Has Completed Cleanup Activities Expeditiously**
 (Based on EPA Data on Landfills)



(Figures in parentheses are number of observations)

CLEAN SITES

Mr. BATEMAN. Thank you very much, Mr. Clark, and we thank all the members of the panel for the testimony you have brought us, and for the patience you have shown in awaiting the opportunity to do it, and the interruptions in the process of doing it.

This is the first panel that has not mentioned Superfund reform. Do you all feel that there is any need for reform of Superfund as we know it?

Mr. CLARK. We have been a strong supporter of Superfund reform, have issued recommendations on it. We see that as being a different venue, and the question for this committee obviously is what can it do within the Federal facility cleanup program if there is not Superfund reform. Clearly, that is the most important thing.

Mr. BATEMAN. Do any other have comments to make on that? I am in error, Mr. Miller. You did make reference to it, but I think, generally speaking, in a different context than the other witnesses.

Mr. MILLER. Yes, I think that is true. Our task force did recommend a couple of other changes to Superfund. One would be an amendment to clarify that land use can be considered in making cleanup decisions, as other witnesses have testified.

I would like to make clear, though, that there is nothing in the law now that prohibits reasonable future land uses from being considered in making cleanup decisions. And in fact, we recently negotiated a draft cleanup agreement—we released it just last week—for Rocky Flats where we make assumptions regarding future land use at that facility and, for the most part, the assumptions are that it will be managed as open space, that certain parts of currently industrialized area could be cleaned up for future industrial use assuming no subsidies from the Department of Energy and that somebody else comes in to run the facilities.

Mr. HUNTER. Would the gentleman yield on that question?

Mr. BATEMAN. Surely.

Mr. HUNTER. Thank you, Mr. Chairman, for yielding.

As I understand, or the way I have always considered future land use or reasonable use of the property, that has been used in the context of instead of cleaning this land up into pristine condition, we clean it up to the point where we can do something else with it, but perhaps not return it to literally pristine or wilderness condition.

What has happened—you say there is nothing that prevents you from considering this use, but what has happened is that State governments have lowered that limbo stick—they have made the standards higher, and they have made it in some cases preclude—as I understand at least in my discussions with staff and with the people who are familiar with the law—in many case, we are not able to use the land in a reasonable state; we have to clean it up.

For example, anecdotally, a friend from Texas said,

> We have got an oil spot at Fort Hood that has to be cleaned up under the applicable State and Federal statutes, literally to pristine conditions, and yet there are oil spots all over Texas, but because this is on a Federal reservation, this thing is going to cost $100 million.

So Mr. Chairman, if I could amend your question, I would ask: Would you go along with the changing of land use standards to reasonable standards that are less than pristine where that seems to be warranted, so that it will not cost so much to clean them up?

Mr. MILLER. Again, our task force recommended clarifying the law to make clear that reasonable future land uses could be considered in making remedial decisions. We do not think that is a change in the law.

In my written testimony, there are a number of examples of instances at DOE facilities where States have agreed to a cleanup level that would be less stringent than a free release.

Mr. BATEMAN. Well, reclaiming my time if I may, I think the problem that we run into here is that if it is Federal property or facility, it is the responsibility of the Federal Government and the Federal taxpayers to do that which is reasonably necessary and certainly everything that in any way reflects on public health and safety.

You are very forthcoming, and under the existing law are willing to take a position that you do not have to make this pristine; it can be dealt with in a way that is consistent with a land use that makes sense, is logical, economically feasible and a part of what is likely to happen. But where the cleanup costs bear as they should on the Federal Treasury, some may drive decisions through political forces and agitations to a more extreme form of cleanup that is beyond any cost-benefit or rational analysis. How we shape the law in order that we fully discharge our responsibility in every reasonable way, but not letting others, through emotional zeal or for whatever other combination of reasons, drive us to bankrupt the Treasury in the process. I hope we will be able to find that kind of balance as we reshape, or hopefully reshape, Superfund.

Excuse me for that long aside.

Mr. MILLER. No problem at all. That certainly is a legitimate concern. The record at this point, as far as I am familiar, at the DOE facilities is that we are not seeing those sorts of unreasonable, "give us back this land as it was before World War II" sorts of expectations. At Rocky Flats, there was a citizen group that DOE brought together to propose reasonable future land uses for the site, and it was their recommendation that most of the sites be retained as open space. That does not mean pristine. That means we only need to clean it up to ensure that if it is used as open space for hiking and so forth that it will be safe for those types of uses. That is obviously a less stringent level than cleaning it up to residential standards.

A couple of other amendments to Superfund that our task force recommended that relate specifically to the Federal facilities are, as I indicated, the issue about section 113(h) and the impact that that provision can have on the States' abilities to enforce other environmental laws that could be included in cleanup agreements.

I think it is very important at these larger sites, particularly the DOE sites, everything there is related—environmental cleanup is related to waste management, is related to mortgage reduction—and it is important to look at it in an integrated fashion. The concern is that CERCLA as it currently stands may deter States from trying to achieve that sort of integration by possibly impairing their ability to enforce their laws.

The other recommendation that we had was consistent with some of the comments that some of the other people testifying here today have made with respect to allowing a single regulator. Our new

agreement at Rocky Flats gets as close as we can possibly get to having a single regulator, given that we have dual cleanup authorities under RCRA and CERCLA; but I can tell you that it was a long and arduous negotiation process to get there. We could make the negotiation of these agreements a lot more streamlined if we made clear that under CERCLA, EPA could delegate its authority to States so that the States would be the sole regulator.

Obviously, I would agree with Ms. Eldredge that the States are in a better position to be overseeing these cleanups than EPA or another Federal agency.

Mr. BATEMAN. Ms. Eldredge.

Ms. ELDREDGE. If I could just reinforce Mr. Miller's comments about the specter of cleanups being forced to pristine levels, particularly at Department of Energy sites, that is raised frequently as a concern, and this is not something we see happening. Not only are people in affected communities agreeing when brought into the decisionmaking process on some lesser residual risk standard, but in some places, unfortunately, in our opinion, we are looking at the possibility of national sacrifice zones where there would not only be limited land use, but no access at all because of the extent of radioactive contamination that we do not have the technology to deal with.

We remain hopeful that, given this country's ability to meet technical challenges, this situation will not always be that way, but for the short term—and the short term in these cases is on the order of 100 years—that is what we are looking at, and we think within the existing structure, there is the ability to make those kinds of decisions if DOE and the contractors and the regulators are willing to work in an open process.

Mr. BATEMAN. Thank you.

Mr. Cochran.

Mr. COCHRAN. I really don't have much to add to what they said other than I think the land use issue is one that is crucial. If we can get quick agreement on achieving reasonable cleanup standards and then deploy some of the technologies that we have today and some that are in the near-term pipeline, we can actually make progress that is going to break through a lot of the barriers that we have been experiencing for the past several years. I would certainly like to see that happen.

Mr. BATEMAN. Mr. Clark, did you have another comment?

Mr. CLARK. Yes. Our experience has been that if you involve the public in the process early and honestly, they are very reasonable people. They do not like to waste their money any more than we like to waste our money, and they understand the importance of taking land use into account in making those decisions.

I think that both departments have gotten much better in this in recent years, in having their advisory panels and public groups to do this. We certainly think it is a most important issue.

You have to look at the incentives a little bit. In the past, with the cost-plus contracts, the incentives really were for the contractors to look for a pristine cleanup, and it may not have been the public; it really may have been the people at the facilities that had that incentive.

Mr. BATEMAN. A very interesting point.

Mr. Dellums.

Mr. DELLUMS. Thank you very much, Mr. Chairman.

First, I am appreciative of both of our chairmen's willingness to add this panel on because this is vitally important. I am specifically pleased that you invited two of the witnesses, although I think all of them have made major contributions to these hearings—Ms. Eldredge and Dr. Cochran—one, because I thought it was important to hear some positive developments in a program that has come under attack for a multiplicity of reasons—limited dollar environment, we need this—whatever the rationale, this program has been challenged, and I thought it was important to put on the record some positive developments.

Above and beyond that, I wanted Ms. Eldredge to come here today to underscore—and I think the question about pristine or whatever has all been underscored by these folks, and I just want to underscore for the fifth time—and that is that when you involve the citizenry early, up front, with dignity and with integrity, people are as intelligent as we are. They elected us; that must say something.

We tend to look down at people. We think we are the only people who have fiduciary capability, but that is bizarre. This is a democracy. People in this country at the grassroots level, as has been stated by this panel, are intelligent and reasonable people, and they do not like their dollars wasted.

What we have learned in the BRAC process, interestingly enough, where you mandate citizen participation, is that when all of the stakeholders are put in a position where they have to come together as a total community across all of the lines that divide us, people tend to approach that and come out on the other end of it with an intelligent and reasonable approach to land use.

It seems to me that we ought to learn something from that. I am involved in the BRAC process, and perhaps one of the healthiest things that ever happened to our community is being forced into that kind of process where people who often do not speak with each other are now not only speaking but planning together. And when people at the grassroots level know that they do not have to fight their way into the process, that it is mandated, there is a level of comfort there that allows people to sit and begin to exchange in a way that, in my opinion, is both exciting and extraordinary.

Maybe we now need to look at CERCLA based on the learnings that we are developing from BRAC and mandate into this CERCLA process what we are learning in the BRAC process that does indeed work. I think this is what folks are saying here, that that is an extraordinary thing.

So we do not have to make these decisions back here. As I said, the people who elected us are very bright people, I like to hope, and they have the capacity to make these decisions at the local level, and they can do it in a very reasonable way.

Having said that, I would like to ask Ms. Eldredge on the record at this point—you are an activist—to tell this committee what has been your experience and the level of your frustration; as you have attempted to impact the process, what have been the frustrations that you have experienced and what are your recommendations as

to how to get us beyond the frustrations that you at the community level have felt?

Ms. ELDREDGE. I think one of the frustrations we have experienced most dramatically in the past couple of years has been with the National Environmental Policy Act [NEPA] process in that we very much pushed for Environmental Impact Statements [EISs] for various actions throughout the weapons complex. We were looking at programmatic environmental impact statements. And what has resulted has been a rather large proliferation of EIS's and a frustration at the community level that people work very hard to get their membership and the folks in these areas out to hearings, participate in the scoping process, present written and oral testimony throughout the NEPA process, and the decisions that come out the other end appear to reflect none of that.

So it kind of raises that level of frustration, where they wonder why are we coming here, what is the reason for participation, why are we even bothering.

On the other side of that, on a more positive note, the site-specific advisory boards at a number of the sites have been a much more positive experience in that they have a lot of not necessarily legal authority, but at least a strong voice in aiding the Department in making decisions. Not all of them have been perfect. Some of them have been a bit too much representatives of cross-purpose interests, in our opinion, and in last year's budget cycle, there was a strong attempt in the Senate to cut funding for those advisory boards.

So I guess there is sort of a plus and a minus. The minus is that the NEPA process, although we strongly support NEPA as a whole, we feel like it is not really being very effective in the Department of Energy in terms of making any changes. On the plus side, we would urge this committee and those involved in funding for community involvement to really look at advisory boards and other ways of increasing capacity building for community involvement, because we feel like those have been positive.

Mr. DELLUMS. Thank you very much.

Mr. Chairman, this is one of those days where I woke up at 4 a.m. and could not get back to sleep, so it was a struggle to get this far.

Mr. BATEMAN. You have come a long way, and you have navigated it very well, and I appreciate it.

Mr. DELLUMS. And again, Mr. Chairman, I would like to thank you for involving this panel and thank all of you, because I think your contribution has been extremely significant to these hearings; to not have had you here, it seems to me, would have left the hearings wanting. So I appreciate the cooperation of my two colleagues.

Mr. HUNTER. Mr. Chairman, if my friend would yield.

Mr. DELLUMS. I would be happy to yield.

Mr. HUNTER. Let me just say as one of the chairmen cohosting this hearing, I have got a lot of respect for the gentleman's sense of duty because you stick with every hearing to the bitter end, and some of them are an ordeal because of the length, but we have people with very important things to tell us, and you have really fulfilled your obligations in this last series of long hearings we have

had. We sat in on one the other day that went a little bit longer than this one.

So I thank my friend from California and I thank the witnesses for their testimony.

Mr. BATEMAN. Well, I will add my thanks to the witnesses and thank them especially for their patience and having sat so long in anticipation of being able to communicate their ideas to us. We are delighted to have had you and appreciate what you have done for us.

Ms. ELDREDGE. We were wondering if we could get flags for staying so long. [Laughter.]

Mr. HUNTER. As a matter of fact, I think we can get flags.

Mr. Chairman, one last thing before we close down. Can we give you folks a few written questions that could be followed up for the record?

Mr. BATEMAN. Yes. Staff may very well have some written questions, and to the extent that it is feasible for you, if you could turn them around within 2 weeks, it would help us as we move toward the markup, and it may well be that we will focus on some specifics that we would like to have further input on.

[The following information was submitted for the record:]

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QUESTION NUMBER 1

ROCKY MOUNTAIN ARSENAL

Mr. Bateman: How will the anticipated cost of implementing the Record of Decision at the Rocky Mountain Arsenal impact the Army's ability to fund other DERA cleanups, including those at formerly used defense sites?

Ms. Goodman: Funds expended on the Rocky Mountain Arsenal will not be available for other program requirements; consequently, implementing the Record of Decision may delay cleanups elsewhere and extend the life of the Army's cleanup program. It is not anticipated that funding the Rocky Mountain Arsenal cleanup will result in the Army's inability to perform cleanup requirements that are legally mandated or necessary to respond to imminent hazards. However, it may be necessary to renegotiate some cleanup schedules associated with Federal Facility Agreements and corrective action permits if the Army's budget requests are not fully supported by Congress. Finally, funding of Rocky Mountain Arsenal requirements should have little or no impact on Formerly Used Defense Sites (FUDS) cleanups, because requirements for FUDS are separately programmed by the Department of Defense and are not included in the budget requests for the Army active sites cleanup program.

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QUESTION NUMBER 2

FFERDC RECOMMENDATIONS

Mr. Bateman: Representatives of your department have signed on to the soon-to-be released Final Report of the Federal Facilities Environmental Restoration Dialogue Committee. Among its recommendations is a call for full disclosure of discrepancies between field-defined requirements and budgets proposed up through the military's organizational structure. Do you intend to implement this recommendation? Would it help if Congress endorsed this approach or modified applicable laws?

Ms. Goodman: The recommendations in the Final Report of the Federal Facilities Environmental Restoration Dialogue Committee (FFERDC) focus strongly on building consensus on cleanup priorities and budgets at early stages of the budget process at the local installation level. The Committee believes that if the regulators and other stakeholders have made a good faith effort but have not succeeded in accommodating federal fiscal constraints in setting cleanup priorities, Executive Branch decision makers should request full funding. The process endorses full disclosure of any discrepancy between OMB budget targets and the funding needed to meet an agency's cleanup obligations. The Committee believes the Executive Branch should make every effort to prevent such a discrepancy.

The Department of Defense intends to implement the recommendations of the FFERDC Final Report through policy issued by DUSD(ES) and the Components. Our principal focus will be to use the relative risk approach for sequencing work in conjunction with legal commitments and to plan and balance programs within a set of fiscally constrained criteria. Stable funding with devolvement will allow the Components to make funding choices since they will have responsibility, accountability and funding for their environmental restoration programs. If the Components identify shortfalls to meet legal agreements in their budget submissions to OSD, OSD's policy is to address funding through the normal budgeting process, to include asking the Components to identify offsets for any shortfalls.

The Department of Defense is moving forward on the recommendations in the final report and modification of existing laws or Congressional endorsement is not necessary for our implementation of this approach. However, Congressional support of stable funding would help reduce concerns about DoD's restoration budget.

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QUESTION NUMBER 3

DOD RANGE RULE

Mr. Bateman: The Defense Department is proposing to identify and develop presumptive responses for all domestic closed, transferred, and transferring military munitions ranges. How many properties is that likely to cover, and what acreage? Using current, proven technology, what is the likely range of costs for such a program?

Ms. Goodman: First, let me define what is meant by "presumptive response." We used this term in the February 20, 1996 draft of the DoD Range Rule. A "presumptive response" will be an interim, safety based measure designed to minimize the explosives safety risk to the public and to any installation employees until a final determination is made on end-use and response measures. This interim measure would receive periodic recurring reviews to determine if it is still protective. For example, a presumptive response could involve controlling access to the site by installing a fence after a surface sweep. Following implementation of the presumptive response, additional evaluations will be carried out. These could include an evaluation of the technical feasibility of further remedial actions, a site specific risk assessment, and a site specific response evaluation. The intended end-use of the property would be considered during these subsequent steps, and the public and the regulators will be fully involved during the process.

The preliminary estimate for the number of properties that may be covered by presumptive responses is about 1300 sites (ranges), including formerly used Defense sites known or suspected to have unexploded ordnance (UXO). The size of these sites vary from a few acres to thousands of acres, with an estimated total of about 7.5 million acres.

It is premature to establish a cost for the Range Rule because we have not yet determined which exact sites of those in the preliminary inventory would be subject to the requirements of the Rule. Although a cost impact analysis is being developed as part of the rulemaking process, the results are not available yet. Once the Range Rule is finalized, we will be better able to track requirements for its implementation.

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QUESTION NUMBER 4

INITIATIVES TO STREAMLINE THE CLEANUP PROCESS

Mr. Bateman: We have heard that the Department of Defense has sponsored or is taking part in numerous initiatives designed to respond the national frustration over the high cost and slow pace of cleanup. Could you describe some of those efforts, including but not limited to: a) The Air Combat Command's Streamlined Oversight project (piloted at Langley Air Force Base in Virginia); b) the Western Governors Association's Interstate Technology and Regulatory Cooperation Working Group; and c) the California Military Environmental Coordination Committee's "Efficiency in Sampling" process action team.

Ms. Goodman: (a) "Variable Oversight" is a partnering effort involving Headquarters Air Combat Command, Langley AFB, Region III EPA, State of Virginia environmental regulators, and the community through the Restoration Advisory Board (RAB). Earlier agreements focused on data-gathering requirements and methods. All sites requiring environmental cleanup were reviewed and assessed to determine the appropriate level of regulatory oversight. The variable oversight partners realized, however, that not every site presents the same risk to health or the environment, nor do they necessarily present a similar level of complexity. Consequently, under variable oversight, regulatory effort is targeted at priority high-concern sites and those requiring complex or innovative cleanup actions. This initiative is expected to reduce the time needed to institute cleanup actions at Langley AFB by 60%, and to reduce the cost by 10%. Air Combat Command is beginning a training course this summer to help other installations implement this initiative.

(b) The Interstate Technology and Regulatory Cooperation workgroup was formed in December 1994 as a subgroup of the Federal Advisory Committee to Develop Innovative On-site Technologies (DOIT). The workgroup is made up of representatives of 22 states, tribal and public stakeholders, industry, and federal agencies. The focus of the workgroup has been on increasing interstate cooperation in the testing, demonstration, evaluation, verification and deployment of innovative environmental technologies. Agreements, protocols, and procedures have been established for interstate transfer and acceptance of data related to the performance and cost of demonstrated technologies. This cooperation eliminates repetitive efforts to gain acceptance of innovative technologies that are more effective, cost less, or faster than traditional cleanups.

(c) In response to the demand for efficiencies in the cleanup process, the California Military Environmental Coordination Committee prepared a Remedial Project Manager's (RPM's) guidance document entitled "Field Analytical Measurement Technologies, Applications and Selection." The purpose of the document is to promote the application of field analytical measurement technologies to reduce the cost and time of cleanups by reducing the need for laboratory analysis and mobilization of equipment and contractors. Initial applications of this

Summary Table of
Installations Participating in Restoration Advisory Boards (RAB)
for Fiscal Year 1995
(Sorted by U.S. EPA Region)

EPA Region	Totals	
	Number of Installations Participating in RABs	Total Number of RABs
Region 1	13	13
Region 2	11	11
Region 3	28	26[a]
Region 4	33	29[b,c]
Region 5	20	20
Region 6	22	22
Region 7	4	4
Region 8	15	15
Region 9	78	60[d,e,f,g,h]
Region 10	27	21[i,j,k,l]
Totals	251	221

Three Navy installations participate in the Philadelphia Naval Complex joint RAB
Two Navy installations participate in the Jacksonville Fleet and Industrial Supply Center/Jacksonville Naval Air Station joint RAB
Four Navy installations participate in the Charleston Naval Base joint RAB
Defense Fuel Support Point, San Pedro participates in an interservice joint RAB with Long Beach Naval Hospital, Long Beach Naval Station, and Long Beach Naval Shipyard.
Three Navy installations participate in the Long Beach Naval Complex joint RAB
Three Navy installations participate in the Oxnard Plain joint RAB
Eight Navy installations participate in the Pearl Harbor Naval Base joint RAB
Seven Navy installations participate in the U.S. Naval Forces, Guam joint RAB
Three Navy installations participate in the Bremerton Naval Complex joint RAB
Two Navy installations participate in the Jackson Park Area joint RAB

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QUESTION NUMBER 5

PROGRESS IN ESTABLISHING RESTORATION ADVISORY BOARDS

Mr. Bateman: Please summarize your progress in establishing Restoration Advisory Boards. How many are in place, by region, state, and Defense Component?

Ms. Goodman: The Department is pleased to report that as of September 30, 1995, 251 installations were participating in Restoration Advisory Boards (RABs). The following tables provide breakouts by DoD Component and EPA Region. Several DoD installations that are located in close proximity to one another have decided to form joint RABs; as a result, the number of RABs formed is 221. On March 11, 1996, DoD provided the Restoration Advisory Board Report to Congress for Fiscal Year 1995. It describes DoD progress toward establishing RABs and details how RABs have contributed to the cleanup process.

Installations Participating in a RAB

DoD Component	Number Participating
Army	28
National Guard Bureau	1
Navy	101
Marine Corps	3
Air Force	107
Defense Logistics Agency	5
Formerly Used Defense Sites	6
TOTAL	251

Table Attached

innovative approach are being used at closing bases to expedite base closure, as well as at active installations. Based on trial experience in California, DoD will determine whether the guidance has national application. The process action team that prepared the document included representatives from DOD, DOE, EPA Region 9, State of California regulatory agencies, and industry.

Two Air Force installations participate in the Campion/Galena joint RAB
Three Air Force installations participate in the King Salmon/Naknek I&II joint RAB

Summary Table of
Installations Participating in Restoration Advisory Boards (RAB)
for Fiscal Year 1995
(Sorted by State)

State	Totals	
	Number of Installations Participating in RABs	Total Number of RABs
Alabama	1	1
Alaska	16	13[a,b]
Arizona	5	5
Arkansas	2	2
California	43	38[c,d,e]
Colorado	5	5
Connecticut	1	1
Delaware	0	0
District of Columbia	2	2
Florida	14	13[f]
Georgia	3	3
Guam	9	3[g]
Hawaii	19	12[h]
Idaho	1	1
Illinois	7	7
Indiana	4	4
Iowa	0	0
Kansas	0	0
Kentucky	1	1
Louisiana	2	2

Summary Table of
Installations Participating in Restoration Advisory Boards (RAB)
for Fiscal Year 1995
(Sorted by State Continued)

Maine	2	2
Maryland	7	7
Massachusetts	6	6
Michigan	2	2
Minnesota	0	0
Mississippi	2	2
Missouri	2	2
Montana	3	3
Nebraska	2	2
Nevada	2	2
New Hampshire	2	2
New Jersey	5	5
New Mexico	5	5
New York	5	5
North Carolina	2	2
North Dakota	2	2
Ohio	6	6
Oklahoma	3	3
Oregon	1	1
Pennsylvania	7	5[1]
Puerto Rico	1	1
Rhode Island	2	2
South Carolina	6	3[1]

Summary Table of
Installations Participating in Restoration Advisory Boards (RAB)
for Fiscal Year 1995
(Sorted by State Continued)

South Dakota	2	2
Tennessee	4	4
Texas	10	10
Utah	2	2
Vermont	0	0
Virginia	10	10
Washington	9	6[k,l]
West Virginia	2	2
Wisconsin	1	1
Wyoming	1	1
Totals	251	221

[a] Two Air Force installations participate in the Campion/Galena joint RAB
[b] Three Air Force installations participate in the King Salmon/Naknek I&II joint RAB
[c] Defense Fuel Support Point, San Pedro participates in an interservice joint RAB with Long Beach Naval Hospital, Long Beach Naval Station, and Long Beach Naval Shipyard.
[d] Three Navy installations participate in the Long Beach Naval Complex joint RAB
[e] Three Navy installations participate in the Oxnard Plain joint RAB
[f] Two Navy installations participate in the Jacksonville Fleet and Industrial Supply Center/Jacksonville Naval Air Station joint RAB
[g] Seven Navy installations participate in the U.S. Naval Forces, Guam joint RAB
[h] Eight Navy installations participate in the Pearl Harbor Naval Base joint RAB
[i] Three Navy installations participate in the Philadelphia Naval Complex joint RAB
[j] Four Navy installations participate in the Charleston Naval Base joint RAB
[k] Three Navy installations participate in the Bremerton Naval Complex joint RAB
[l] Two Navy installations participate in the Jackson Park Area joint RAB

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QUESTION NUMBER 6

DEFENSE AND STATE MEMORANDUM OF AGREEMENT (DSMOA) PROGRAM

Mr. Bateman: You are on the record opposing cuts in the Defense State Memorandum of Agreement program. What has been/is likely to be the impact of such cuts?

Ms. Goodman: We expect that beginning later this fiscal year we will experience one or more of the following:

- State and territorial technical support slowed.
- Remedial action design, and construction, and initial operations delayed.
- State participation in Restoration Advisory Boards reduced or curtailed.
- Partnering and the trust that has been established between the states and the Military Departments jeopardized.
- Near-term budgeting by states and territories disrupted. States and territories need to plan for their resource needs at least a year ahead. This situation could result in
 - Loss of important institutional knowledge and a weakening of existing partnerships with the Military Departments due to transfer of state personnel to other programs where adequate funds are in-place; and
 - Termination of DSMOAs.
- Program costs to the Military Departments increased. States may withdraw from DSMOA and resort to enforcement and litigation or to a cost-recovery system to recoup costs for regulatory support. These less than desirable alternatives to cooperative decision making would likely delay cleanup and could increase oversight costs by as much as 25 percent.

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QUESTION NUMBER 7

LEGAL OBLIGATIONS AND DEFENSE AND STATE MEMORANDUM OF AGREEMENT FUNDING

Mr. Bateman: In FY96 DoD requested $1.622 billion for DERA. Congress appropriated $1.411 billion, $211 million below the amount the Defense Department and the Administration said was needed to meet minimal legal obligations and undertake an adequate cleanup including minimal new technology development.

The estimated DERA request for FY97 is aggregate $1.333 billion. With requested funding for FY97 almost $300 million below that requested for FY96, what is DoD doing to guarantee that reduced DERA funding does not affect agreements made with the states under the Defense State Memorandum of Agreement and other obligations?

Ms. Goodman: The decrease in the FY97 budget request for DERA results partly from shifting funds to the Base Realignment and Closure (BRAC) account for BRAC 95 bases. The Department is constantly striving to maximize environmental restoration efficiency. However, reductions in funding do not reduce the amount of work or associated cost required to meet legal obligations. It simply takes longer to meet legal obligations; potential exposure to environmental contamination is prolonged; and overall costs may actually increase due to inefficiencies resulting from funding reductions.

Decreases in the FY96 funding, combined with the impact of reductions in prior years, slow the process and delay final completion of the cleanup program. Some sites will receive less funding than previously planned and others will be delayed to future years. In some cases projects at high relative risk sites scheduled for award in late FY96 were shifted to FY97. Also, projects that included medium and low risk sites were deferred.

The Military Departments are working with state and federal regulators in several states to adjust schedules and delay work at sites where environmental commitments had previously been made. The Military Departments are emphasizing the results of the relative risk analyses completed in FY 1995 and seeking relief on low relative risk sites in most cases. Commitments of all types are being reviewed. We anticipate that the use of the relative risk model, combined with this review of commitments, will allow us to execute within the funds available and still provide protection of human health and the environment.

The Military Departments are also working to renegotiate commitments made at Third Party Sites where they are just one of the responsible parties paying for the cleanup actions. These sites present a unique problem because the work is not controlled by DOD people and the commitments were made several years ago when the cleanup budget was expected to be much larger than it is today. With the significant reduction in the overall cleanup program, Third Party Sites commitments are being evaluated in the same manner as sites on our installations.

Our FY 1997 DERA budget request includes sufficient funds to meet requirements in our legal agreements. Note that funding for cleanup at bases that were included in the fourth round of BRAC are now budgeted in that account. The Military Departments are following DOD guidance to implement relative risk within the context of legal agreements. Relative risk provides a basis for dialogue with regulatory agencies and public stakeholders on sequencing work at installations, recognizing that there are not sufficient funds available to fund all requirements in the same year. The relative risk approach provides for a structured approach and provides discipline in executing our program by focusing on "worst first."

The Defense and State Memorandum of Agreement (DSMOA) and Cooperative Agreement (CA) Program was developed to enhance state and territory involvement in the cleanup of DoD installations, specifically through the environmental restoration and BRAC programs. It is a valuable tool for DoD. However, in order for this tool to be effective the DSMOA and CA program must be adequately funded and not restricted by caps that are not related to the work effort. A basic premise of the DSMOA program is that states and territories are reimbursed for services they provide in support of DoD restoration activities. In addition to fostering improved relations between the states or territories and DoD, this program supports the DoD-wide goals of achieving more efficient cleanup and developing new partnerships to address environmental restoration problems specific to or typical at DoD sites.

A limitation in the National Defense Authorization Act For Fiscal Year 1996 placed a ceiling on funds available for reimbursement under the DSMOA Program in FY96. Conference Report language in Section 321 of the Act limits reimbursable agreements to $10 million in FY96, subject to increase, however, upon certification by the Secretary of Defense to Congress that a higher limit is essential. The Department is in the process of certifying to Congress that $10.9 million from DERA funds already appropriated will be needed for the DSMOA Program in FY96.

We are working to build long-term relationships with our stakeholders. With the prospect for stable funding, we are building a schedule to complete our entire program, based on reducing risk to public health and the environment. DoD is committed to completing cleanup at all sites that pose a threat to human health and the environment. A stabilized funding approach is the best way to demonstrate this commitment, making the relative risk approach more acceptable.

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QUESTION NUMBER 8

PLANS FOR DEVOLVEMENT

Mr. Bateman: In the planning for devolvement how will DOD and the service branches insure that there is stakeholder input into the process? What are the plans for making the report on devolution public?

Ms. Goodman: Devolvement is a change in account structure internal to the Department of Defense. Full integration of the environmental restoration program into the planning, programming, and budgeting system (PPBS) at the Component level will bring the institutional checks and balances of that system to bear. Including environmental restoration in Component program and budget reviews will allow restoration requirements to compete with other mission requirements, improve the planning and execution of the restoration program and lead to broader support within each Department for environmental restoration needs. Components build their plans for execution of the program based on goals to reduce risk to human health and the environment and to meet legal requirements.

Other stakeholders, in addition to regulators, are now deeply involved in the process to cleanup military installations. Restoration Advisory Boards (RABs) are an integral part of the program. A RAB is a group comprised of DoD, regulators, and community members formed to act as a forum for discussion and exchange of information between agencies and the community and to provide an opportunity to review progress with decisionmakers at DoD installations. RABs are involved in reviewing and commenting on relative risk site evaluations and other program factors that are used to develop restoration program requirements.

The Devolvement Report has been submitted to Congress and is available as a public document. It is also being added to our Home Page so it will be available to individuals with Internet capabilities.

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QUESTION NUMBER 9

FENCED DERA APPROPRIATION

Mr. Bateman: This year an attempt was made to transfer funds allocated for DERA to funds for the Bosnia mission. Will DOD guarantee that, given the reduced budget for environmental restoration, there will be no further attempts to "take down the fences" that currently protect DERA appropriations?.

Ms. Goodman: The Department has never permitted DERA funds to be used to pay for other than environmental cleanup activities, nor have we proposed reprogramming those funds for other purposes. On one occasion, however, Congress rescinded $300 million (Public Law 104-6 of April 10, 1995) from the FY 1995 Environmental Restoration, Defense appropriation to provide emergency supplemental funding "to preserve and enhance the military readiness of the Department of Defense for the fiscal year ending September 30, 1995, and for other purposes." DoD strongly supports a fenced account in the year of execution to ensure that the level of funding Congress authorizes and appropriates for DERA is spent only on environmental cleanup.

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QUESTION NUMBER 10

EFFECTS OF DEVOLVEMENT ON CLEANUP

Mr. Bateman: DOD has gone ahead with its plan to devolve DERA appropriations for FY97, in advance of the report requested by the Authorization bill. What has been the effect of devolvement so far this year? What will the effects of devolvement be on the future of the cleanup?

Ms. Goodman: The Military Departments have incorporated the environmental restoration requirements into the Planning, Programming and Budgeting System (PPBS) process, DoD's internal development and review process. The FY97 President's Budget has been developed in a devolved environment.

With devolvement, the responsibility, accountability, and funding all lie with the individual Components. Each Component evaluates whether there is sufficient funding to support cleanup based on relative risk, or to meet the commitments in signed legal agreements with regulators. The primary benefit of devolvement is that it will bring to bear all of the institutional controls of DoD's internal budget development and review process. We expect more rigor to be applied into the development and assembly of the program and budget.

ODUSD(ES) will continue to provide active oversight to the program through policy making, goal setting, and performance measurement leading to a consistent program appropriately sized to deal with the environmental restoration problems resulting from past activities.

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QUESTION NUMBER 11

FORMERLY USED DEFENSE SITES

Mr. Bateman: The FY97 budget states that responsibility for environmental restoration at Formerly Used Defense Sites has been changed from the Army to the DoD. Why was this shift made and what does it mean?

Ms. Goodman: The responsibility for the Formerly Used Defense Sites (FUDS) Program has always been and will continue to be the responsibility of DoD. The Army is our "Executive Agent" for the Program and the Army has assigned the Corps of Engineers responsibility for execution of the Program. All of this remains the same under the FY 1997 budget.

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QUESTION NUMBER 12

IMPLEMENTING FEDERAL FACILITIES ENVIRONMENTAL RESTORATION DIALOGUE COMMITTEE RECOMMENDATIONS

Mr. Bateman: What is the schedule and how does DoD plan to institutionalize the Consensus Recommendations and Principles for Improving Federal Facilities Cleanup developed by the Federal Facilities Restoration Dialogue Committee?

Ms. Goodman: DoD strongly supports the fourteen Principles for Environmental Cleanup of Federal Facilities. I believe that we are already adhering to them in carrying out the restoration program. For example, Principle 9--Consideration of Human Health and Environmental Risk in Cleanup Decision Making, is a long-standing tenet of our program. The committee recommendations regarding advisory boards have largely been implemented. We recognize, however, that we may need to develop supplemental guidance in areas such as advisory board education and training and capacity building for stakeholders to ensure that the DoD Components are operating consistently. A Technical Assistance for Public Participation rule is now being developed by a DoD/EPA working group to provide funding to community members of Restoration Advisory Boards. Other committee recommendations, such as those regarding funding and priority setting, will require implementing guidance. We will work with the DoD Components to develop it. Because Army, Navy, and Air Force representatives were involved in developing the final report recommendations, I expect DoD to be able to make rapid progress. We would anticipate including these new procedures in the Defense Environmental Restoration Program Management Guidance, due later this year.

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QUESTION NUMBER 13

FEDERAL ACQUISITION STREAMLINING ACT

Mr. Bateman: Section 1004 of the Federal Acquisition Streamlining Act of 1994 created a statutory preference scheme for making multiple awards of delivery order contracts and subsequent competition of individual tasks or delivery orders. What impact has this preference for multiple awards had on environmental contracting within the Department of Defense?

Ms. Goodman: Subpart 16.5 of the Federal Acquisition Regulations (FAR) implements Section 1004 of the FASA and expresses a preference for multiple awards when using indefinite-quantity contracts. FAR Subpart 16.504(c)(1) states further that multiple awards should not be made if one or more of six circumstances apply.

Contracting officers are expected to exercise sound business judgment and use the full flexibility the FAR provides when awarding contracts for environmental remediation. The multiple award method of contracting can be advantageous when acquiring products or services because there is a capable contractor available if the selected contractor cannot perform. No resolicitation is necessary and time and money are saved. Subsequent competition of individual task or delivery orders can also be advantageous in terms of getting best price. These "competitions" are very limited in nature. They are not formal competitions subject to the rigors of the FAR, nor are they subject to formal protest by the bidders. This limited competition costs very little in terms of time. Program managers may be required to put in a little more effort up front under a multiple award method, but it should result in better value overall.

There are times when multiple award contracting is not advantageous. Because of the nature of environmental remediation, with its uncertainties and potentially staggering fines for noncompliance, contracting officers must determine, on a case-by-case basis, the appropriate contracting method suited to each individual set of circumstances. The Army, Navy and Air Force all feel that FAR Subpart 16.504(c)(1) provides adequate flexibility for their environmental remediation contracts within the multiple award requirement.

Mr. BATEMAN. Thank you again.
Mr. HUNTER. Thank you.
Mr. BATEMAN. We stand adjourned.
[Whereupon, at 6:30 p.m., the subcommittees were adjourned.]
[The following statements were submitted for the record:]

DEPARTMENT OF THE AIR FORCE

PRESENTED TO THE COMMITTEE ON NATIONAL SECURITY

SUBCOMMITTEE ON MILITARY PROCUREMENT

AND

SUBCOMMITTEE ON READINESS

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: ENVIRONMENTAL PROGRAMS

STATEMENT OF: THOMAS W. L. MCCALL
DEPUTY ASSISTANT SECRETARY
OF THE AIR FORCE
(ENVIRONMENT, SAFETY
OCCUPATIONAL HEALTH)

21 MARCH 1996

NOT FOR PUBLICATION UNTIL RELEASED

BY THE NATIONAL SECURITY COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

BIOGRAPHY

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THOMAS W.L. McCALL JR.



Thomas "Tad" McCall is the deputy assistant secretary of the Air Force for environment, safety and occupational health, the Pentagon, Washington, D.C. He establishes policy for, and oversees, worldwide Air Force environmental, occupational safety and health, base comprehensive planning, natural resources, disaster preparedness, explosive ordnance disposal, fire prevention and protection, air base performance and operability, community economic impact, and interagency and intergovernmental coordination matters. He also has extensive involvement in a wide range of operational infrastructure matters such as airspace use, air-to-ground weapons ranges, and munitions storage.

In 1967 Mr. McCall enlisted in the Navy Reserve as a seaman recruit, and was commissioned as an ensign in 1968. He was officer in charge of patrol craft Fast-88 in Vietnam, and converted to the Judge Advocate General Corps in 1972. He retired as a captain after 24 years of service. He served as legal adviser for environment and international law in the Office of the Chief of Naval Operations, and then as negotiator for the commander of U.S. Forces in the Philippines. From 1986 until 1989 he was the legal and legislative counsel to the assistant secretary of the Navy for shipbuilding and logistics; and the legislative attorney for environment to the Navy chief of legislative affairs. He then became special assistant for environment and energy to the assistant secretary of defense for legislative affairs.

From 1991 until 1993 he was acting deputy assistant administrator at the Environmental Protection Agency, Washington, D.C., where he was the senior U.S. government official responsible for oversight of environmental compliance at all federal agencies. He chaired EPA's Federal Advisory Group for involving communities in the federal government's environmental cleanup and waste management activities. Popularly known as the "Keystone" Report on Federal Facilities cleanup, the group's recommendations were endorsed by EPA administrator Browner and the attorney general of all 50 states. The recommendations are being implemented by Department of Defense (Restoration Advisory Boards) and the Department of Energy. He also is a current member of the California Bar.

Mr. McCall is a native of Portland, Ore., and is married to Kathleen Taimi of Potomac, Md. He has a daughter, Heather.

EDUCATION:

1967	Bachelor of science degree in history, University of Oregon
1975	Juris doctor degree, magna cum laude, University of San Diego
1981	Master of law degree, University of Washington, (first in class)

CAREER CHRONOLOGY:

1. 1968 - 1992 Member, U.S. Navy (Captain, JAGC, retired)
2. 1986 - 1991, Legislative attorney for U.S. Navy, DOD
3. 1991 - 1993, Acting deputy assistant administrator for Federal Facilities Enforcement, U.S. EPA
4. 1994 Consultant with BDM Federal, Inc.

AWARDS AND HONORS:

1969 Bronze Star Medal with "V" device
1969 Republic of Vietnam Gallantry Cross with bronze star
1969 Navy Commendation Medal with "V" device
1984 Navy Meritorious Service Medal
1986 Defense Meritonous Service Medal
1989 Navy Meritorious Service Medal
1992 Military Production Network/Military Toxics Network Award for Outstanding Environmental Work
1992 Department of Defense Superior Service Medal
1993 Sierra Club (Rocky Mountain Chapter) Achievement Award

PUBLICATIONS:

The U.S. Environmental Protection Agency's Integrated Management Strategy for Environmental Compliance by the Federal Government," Proceedings, International Conference on Environmental Enforcement, September 1992

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS:

Visiting Scholar, Environmental Law Institute
Chairperson, Federal Facilities Environmental Restoration Dialogue Committee
Member of two public advisory boards to assistant secretaries of energy
Participant in numerous national policy dialogues on environment

(Current as of September 1994)

Mr. Chairman and members of the committee, I am pleased to have this opportunity to discuss the Air Force program in environment, safety, and occupational health.

The environmental, safety and occupational health program results in an Air Force that fights longer, better and cheaper with a minimal cost to the environment. I'd like to outline how the Air Force will seek to achieve these goals in the next five years and ask for your support in reaching them.

Environment, Safety and Occupational Health Principles

America wants environmental programs that work better and cost less. In March 1995, the Secretary and the Chief of Staff defined the key principles that the Air Force environmental program will use as it enters the 21st century. These principles are:

- ◊ Sustain readiness,
- ◊ Be a good neighbor, and
- ◊ Leverage our resources.

These principles are the watch words of our program from the airman on the flightline to the generals here in Washington.

Sustain Readiness. Good environmental practices help ensure the Air Force has the training ranges and airspace it needs to be mission ready, while at the same time assuring the American people they have made the right choice by entrusting us with the use and care of over nine million acres of America's rich habitats and varied ecosystems. Good environmental practices protect our natural resources that provide the real life terrain which replicates the many conditions--from ice caps to sand drifts--under which we may be called to defend freedom and keep the peace. Scientific stewardship of our natural

resources also preserves America's rich natural beauty and abundance. We take our stewardship responsibilities seriously, so we will always be "America the Beautiful."

Be a Good Neighbor. During the past year, the Air Force has worked hard at being a good neighbor to our communities. As I travel throughout the Air Force, our men and women are working together with American communities to deal with tough environmental issues. We are revitalizing and expanding the critical partnership that has always existed between the military and our people. As a part of this revitalization we are demonstrating that government is effective and can solve the tough issues involving pollution of the air and water. Our communities are eager to participate in this work and are coming into the process with a spirit of partnership and a refreshing vigor as, together, we try to build an Air Force which will meet the environmental challenges of the next century.

Leverage Our Resources. We all understand that the next century will present real challenges for the Air Force to make maximum use of its resources in order and maintain mission readiness. We all recognize that we must get the most "bang for the buck" and that the environmental program must play a key role in this effort. We are focusing the Air Force Environment, Safety and Occupational Health program on reducing costs and increasing efficiencies that also will help us improve performance while protecting our workforce, our neighbors and our environment. We can leverage our investment for America and strive to be a leader in building a clean, healthy productive industrial complexes based upon best management practices in addition to new environmental technologies and products that provide highly technical jobs.

The Air Force Environment, Safety and Occupational Health team includes many disciplines, from civil engineers to medical professionals to safety experts: a truly cross functional and integrated team. We are using the disciplines of environment, safety and occupational health to assist Air Force managers and operators in improving performance and reducing costs. This professional cross section provides the Air Force the capacity to engineer cost out of our systems while improving our performance.

What makes this team unique is its close connection to the workplaces of the Air Force. This is the only team chartered to look at all Air Force workplaces, from the cockpit to the grease pit, and evaluate the impacts of each workplace on the workers and the surrounding environment with the specific mandate to improve productivity, cost-efficiency, and performance by using their skills as force multipliers, not constraints. I firmly believe this team represents a unique force for change that can lead to a more cost-effective and powerful Air Force providing value, performance, and convenience.

While these programs enjoy the highest level of interest, it is our Air Force people in the shops and on the flightline that provide the innovation and aggressiveness that have given the Air Force an unparalleled record of environmental achievement and stewardship. We are putting environment, safety, and occupational health principles into practice and continuing to integrate it into our day to day activities. The momentum we see in the environmental program must be maintained by the continued healthy partnership of support from the Executive Branch and the Congress, including sufficient funding and continued emphasis to ensure that we are building a new cultural behavior that instills environmental excellence into everything we do. I realize that meeting this

challenge is a tall order, and now I'd like to describe for you some of the details of our plan to meet these challenges.

POLLUTION PREVENTION

The Air Force Pollution Prevention program will reduce future pollution and its untoward effects on human health and the environment by reducing hazardous material use and release of pollutants into the environment. It clearly makes good business sense to make the modest investments necessary to engineer hazards out of our weapon systems during their design phase in order to control hazards over the, potentially, 30 year lifetime of the system and avoid the huge costs associated with management of these wastes and materials. Pollution prevention efforts we take today are critical to the Air Force's ability to meet its mission in the future. Pollution prevention is our method of choice to promote, safer, more reliable weapons systems that require less maintenance and pose less risk to the health of Air Force personnel.

The Air Force is well on its way to meeting established goals in the areas of hazardous material usage and hazardous and municipal solid waste reductions. Installations have analyzed waste streams to determine where reductions can be made. Processes using hazardous materials have also been analyzed through opportunity assessments and reductions are being made through projects that eliminate the use of the materials or change the process. Purchase and use of hazardous materials has been reduced from 6,056 tons in 1992 to 3,023 tons in 1995, a 50% reduction. Hazardous waste disposal has been reduced 8,400 tons in 1995 from the 1992 baseline, a 35% reduction, while municipal solid waste disposal was down 34.8% in 1995 from the 1992 baseline, a total reduction of 292,000 tons.

I would now like to outline the Air Force strategy to meet its pollution prevention challenges.

Integrate Pollution Prevention Ethic through Comprehensive Education, Training, and Awareness. In order to accomplish this we must permeate all mission areas with the pollution prevention ethic through comprehensive education, training and awareness. The Air Force has created an Education and Training Master Plan that fully integrates environmental education and training into all career fields to promote pollution prevention awareness in every Air Force civil servant and military member.

Incorporate Pollution Prevention in All Aspects of Installation Operations. Pollution prevention is our preferred choice in seeking to obtain compliance with environmental statutes. We are working with regulators and industry to develop ways to design pollution out instead of building engineering controls to minimize pollution after it has been generated, and use life cycle cost analysis and return on investment to support pollution prevention projects with long term benefits emphasized over short term gains. Where we can't eliminate hazards through source reduction, recycling techniques will be used to eliminate wastes and the threat of release into the environment. This approach creates improved working conditions, increased productivity, and results in better use of resources through decreased cost and liability.

Institutionalize the Pollution Prevention Approach into All Phases of the Weapon System Life Cycle. We are developing processes that help weapon system program managers fully integrate environmental, safety and occupational health considerations into the production, operation, maintenance and disposal of weapon

systems and products. By targeting hazardous materials and the processes using them, hazardous material usage during maintenance of the systems will be reduced.

Our F-15 System Program Office (SPO) in cooperation with McDonnell Douglas Aerospace has proven that effective system development can resolve formidable environmental challenges through the development and transition of pollution prevention technologies. The Air Force's F-15 SPO has integrated new and developing technologies that eliminated virtually all Ozone Depleting Chemicals (100 of 113 operations). Through the institution of pollution prevention into the life cycle of the system, we have also replaced all primers, topcoats, and specialty coatings used at McDonnell Douglas with coatings that meet the September 1998 international aerospace deadline to reduce the use of volatile organic chemicals. These new materials protect our workers, reduce environmental impacts and meet mission requirements.

Develop and Transition Innovative Pollution Prevention Technologies to the Field. We must build on our past successes in developing innovative pollution prevention technologies to reduce the production and use of hazardous materials in our weapon systems and at our installations. For example, we improved the operational capability of our B-52 fleet by testing battery failures by substituting to an environmentally friendly and maintenance-free nickel cadmium battery system. The batteries improve our "up" time and avoid costs. We avoid $500M in expenses over 20 years, and reduce non-operational costs by $500M by reducing sortie aborts due to failed batteries. Continued efforts of this kind will allow us to avoid unnecessary costs whether

they be mission dollars, transactional costs or the costs from time lost due to down time or aborted missions.

Budget Request. For FY 97, our budget request is $76.6 million. Of this, we are requesting $15.2 million to support the demonstration of technologies and the qualification of commercially available technologies for transfer to field use. The remainder of our request funds on-going efforts to replace ozone depleting chemicals and other toxic and hazardous chemicals currently in use and to maintain the successes of our recycling program.

TECHNOLOGY

Scientific research and technology development are critical to meeting our goal of an Air Force environmental program that costs less, supports readiness and protects our communities. To date our environmental technology program has yielded successes in each of the Environment, Safety and Occupational Health areas, such as the development of a replacement for Halon 1301, the fire-suppressant used on nearly all of our aircraft. The development of a low-weight, more available alternative to the ozone depleting Halon 1301 has enhanced Air Force readiness while allowing us to meet United States international commitments. Technology can also mean more than chemical substitution. By the deployment of robotic paint stripping systems using high pressure water jets in our B-1B and KC-135 depots, the Air Force has reduced hazardous waste by 121,000 gallons annually and significantly reduced the health risks to our worker by nearly eliminating exposure to toxic materials. We need to continue this momentum into the future. Our strategy to accomplish this follows.

Build Needs Based Program. New technologies do not benefit the Air Force unless they are used. This means that new technology development must be driven by user-needs. To ensure that our needs are clearly identified and then articulated, the Air Force has developed it Technical Planning Integrated Product Team process. This process provides a mechanism for identifying and then prioritizing the technology needs for the Air Force Environment, Safety and Occupational Health programs. We have developed this process over the past two years and at this time have developed an integrated, user-

driven approach that lists our environmental technology needs. We will finalize a similar approach for our safety and occupational health programs over the next year.

Leverage Non Air Force Resources. This year we have also taken the step of using this technology needs listing to partner with labs outside the Air Force. I am finding that our integrated priority listing of environmental technology needs is a powerful tool for getting support from other federal labs. We are now working with several DOE laboratories to find ways to meet the technology needs of both agencies while eliminating duplication of effort. We are also working very hard to build bridges into the commercial and academic sectors, and are working to inventory capabilities and develop opportunities to take advantage on work in progress. As this process matures we hope to be able to build a market that will support our technology needs at reduced cost and with less risk.

Budget Request. Across the entire environmental program the Air Force is requesting $54.5 million in the appropriation for technology. It is important to note that $39.4 million of this amount is needed to support the compliance, conservation and pollution prevention efforts at our three test centers: Eglin Air Force Base, Arnold Air Force Station, and Edwards Air Force Base. Any reduction in the funding at these test centers will require the expenditure of operating funds to ensure continued compliance with statutes.

COMPLIANCE

Compliance with environmental laws and regulations is fundamental to the performance of each installation mission. Day to day operations affect the quality of land, air, and water in communities surrounding our bases, and we will not allow pollution to endanger the health and environment of the communities we defend. Sound environmental management precludes fines and penalties that cut into a commander's readiness and operations resource. I believe in sound environmental management that is proactive and integrated; a program that eliminates environmental enforcement actions and emphasizes common sense integration of pollution prevention.

Open enforcement actions for 1995 are down to 67 from the 1992 baseline of 252, a 72% reduction. This reduction has occurred as the number of actual inspections has increased. In the Underground Storage Tank (UST) program, 1754 tanks have been eliminated since the program started in FY 93, and another 2503 tanks have been upgraded to meet the 1998 standards, achieving a 63% compliance rate for FY 95. The remaining USTs are on schedule to be eliminated or upgraded by December 1998. Our installations are currently 70% free of liquid polychlorinated biphenyls. Partnering agreements have been developed with numerous states, with Texas and Georgia being the most recent. The goal is to have partnerships by the end of 1998 with all states which have Air Force facilities. The following outlines the direction of our compliance efforts in the next few years.

Maintain an Aggressive Compliance Monitoring. Inspections, communications, and partnerships with environmental regulators and stakeholders are key to eliminating

enforcement actions. Effective Environmental Compliance, Assessment, and Management Program (ECAMP) inspections and other assessments identify potential violations and aid the installation in being proactive in resolving them. We see this as a major contributor to our ability to reduce the number of enforcement actions that we receive.

Build Partnerships with Our Regulators. Increased partnerships and free and open communications foster greater flexibility, eliminate violations and help installations gain a better understanding of the goals and policies of regulators, especially overseas. As a good stewards of America's trust, both the Air Force and our regulators have a requirement to ensure that our operations do not present unacceptable hazards to human health and the environment. It is time for us to build relationships with our regulators that will allow them to help us and achieve compliance by working together. In this regard I fully support the ENVVEST efforts to find new ways to meet compliance requirements.

Develop Pollution Prevention Opportunities to Achieve Compliance. Pollution prevention is our first choice to meet current and future environmental compliance requirements. For example, the development team that is designing the Joint Primary Aircraft Training System is designed to be virtually free of harmful substances, reducing both hazards to maintenance workers and eliminating hazardous material management costs for the life of the system. Effective pollution prevention solutions, such as this, will improve the health of our workers and those people living in surrounding communities,

enhance mission accomplishment, and reduce compliance costs including fines and penalties resulting from violations.

Budget Request. For FY 97 the Air Force is requesting $467.5 million to support compliance costs. This funding is needed to maintain operations that ensure continued compliance such as meeting permitting requirements and those actions that are needed to correct situations which are already out of compliance or are estimated to be out of compliance in FY 97. Our FY 97 request also includes $51.8 million in military construction funding which continues our underground storage tank and waste water treatment plant upgrade programs.

CONSERVATION

Air Force commitment to conservation protects our natural resources and supports our mission while providing public access to a diverse and sustainable environment. Careful management of our air, land , and water ensure our forces will continue to have access to these resources as we train and operate. This is accomplished through our commitment to protect and enhance our natural and cultural resources, including wetlands, endangered species, and historic sites, through sound stewardship, management, and the continued incorporation of environmental planning into all operations and activities.

Currently, we are inventorying our natural and cultural resources so that we fully understand what resources we are managing. Simultaneously, we are taking management initiatives to protect those natural resources. I'd like to review our inventory scorecard to date followed by an outline of our management initiatives.

Cultural resource inventories are 81% complete, while biological inventories are 93% complete and wetlands inventories are 96% complete for all Air Force installations as of FY 95. The overall DoD goals for these inventories were 40%, 25%, and 40% complete, respectively, by FY 95.

Natural and cultural resource plans for Air Force installations are 80% and 70% complete respectively, against a DoD goal of completing 60% and 50% of the plans by FY 96.

Next an outline of our management initiatives.

Protect Readiness Through Good Environmental Management. We will work to ensure natural and cultural resources, wetlands, threatened and endangered species, and historic resources are managed to protect mission readiness. The protection and enhancement of these finite resources shows the Air Force commitment to environmental quality on the 9 million acres of land under its stewardship. Through better planning and more open decision-making that includes ample opportunities for public input, the Air Force will have continued access to the installations, airspace, and ranges required for training and flight testing.

Our most ambitious undertaking in improved environmental management is our project to incorporate decision-making on the sound principals of conservation. These scientific practices protect the diversity and strength of our natural resources. Using this science, our natural resource managers work in coordination with our operators to maximize both training opportunities and environmental protection. We achieve this with no new costs and no additional bureaucracy.

Reengineer the Environmental Impact Analysis Process (EIAP). The EIAP is the Air Force's implementation of the National Environmental Policy Act, the nation's charter for environmental protection. Through enhanced public participation at the earliest stages of project environmental analysis, many problems can be avoided which tend to add to the cost and length of time for program implementation. By involving project proponents in the analysis of the environmental impacts of a proposed action, environmental considerations will continue to be an Air Force business practice resulting in increased support for our operations from American communities.

Use Comprehensive Planning for Effective Installation Development. Comprehensive planning is the "blueprint" for the future layout of all Air Force installations. A well prepared and up-to-date plan provides commanders with a critical long range tool to direct future growth, while allowing for the short term needs of contingencies and mission beddowns. As a part of comprehensive planning, the Air Installation Compatible Use Zone (AICUZ) program addresses the noise impact and accident potential on and around Air Force installations. The primary focus of AICUZ is to prevent encroachment from nearby communities, thus protecting the continued operation of the installation. We will work to complete our inventories and integrate them into the base-wide comprehensive plans to ensure that environmental concerns are addressed as the infrastructures of our bases are developed and modernized.

Budget Request. Our FY 97 budget request is $43.6 million. This funding is needed to fully support the development of Environmental Assessments and Environmental Impact Statements as required under the National Environmental Policy Act in addition to providing for continued development of our natural and cultural resource plans and inventories.

CLEANUP

To date, the Air Force has spent $3.1 billion on cleanup and has approximately a $6.1B requirement left to clean up all remaining sites. The estimated program completion date is 2034, due to the cleanups required at our largest logistics centers. The Air Force has closed out over 1600 sites, and still has approximately 2600 active sites.

There are several changes occurring in the Environmental Cleanup Program to make it more effective and more efficient. We are moving to ensure that our limited resources continue to be efficiently used by implementing the relative risk concepts. The relative risk approach will allow for increased efficiency in the execution of our program by focusing on the "worst first." We are also continuing to build strong long-term relationships with our stakeholders by expanding the use of our Restoration Advisory Boards (RABs). I will now address the initiatives that we are taking to enhance the effectiveness and the execution of our cleanup program on active bases.

Relative Risk. In 1995, the Department of Defense instituted a program of determining the relative risk to human health and the environment of every contaminated site to focus on cleaning up the worst sites first. This allows us to meet our legal obligations in partnership with our regulators and community partners using a simple model to evaluate potential risk to human health from pollution. By using a consistent method to determine the relative risk of every site, the sites can be sorted into three categories - high, medium and low - all having the same meaning for each major command and installation across the U.S.

Public Involvement Through Restoration Advisory Boards. Our public involvement efforts have been successful. In the past environmental cleanup has suffered from a lack of trust from the public and the Congress. As the Air Force has moved strongly from a program of study to actual construction of remedies, Congress and the public have demanded more involvement in the process to ensure cleanup actions are really protecting human health and the environment. One of the biggest changes in public involvement is through Restoration Advisory Boards (RABs) which have been formed at 96 of our 107 active installations, including the Air Guard and Reserves, where the local communities have shown an interest in participating. The RAB members come from all walks of life in the local community and participate in document reviews and discussions on prioritization of work. The RAB members receive training in developing relative risk rankings, the government budget process, new technologies to more efficiently clean contaminated sites, and other issues necessary to understand how the process works. The RAB members represent the people and who are impacted by the contamination and who have to live with the decisions. An educated public helps to introduce a fresh perspective into our cleanup program that is different from that of the Air Force and our regulators. The better educated the public is on the process and the threat from the contamination, the better advice they can provide to the installation on how their tax dollars should be spent. The partnership between the services and stakeholders can also serve to speed up the cleanup process and get community buy in on cleanup decisions. Communities are then more likely to view the Air Force as a good neighbor and continue to support our presence in their communities.

We must build on the successes that we have achieved and are defining a role for the RABs that will allow their inputs on cleanup priorities to be visible in our budgeting process. This will allow our partners better visibility on the constraints of the program which will lead to more effective use of the limited resources available.

Build a Schedule to Cleanup Air Force Contamination. The RABs are the most important advance in the cleanup program. They are the human technology that is transforming cleanup into an effective and budget sensitive program. RABs will save more money and improve our cleanup credibility more than any other advance in cleanup. The small amount of money required to fund the citizen volunteers is an excellent investment of taxpayers dollars. For FY 97 we have requested $1.4 million to support the administrative costs of this crucial partnership between your constituents and the Air Force.

The Air Force is further refining its schedule to complete the program which implements the FY 96 evaluation of the cost to cleanup the Air Force. The Air Force knows the scope of the program, where we are today, and where we need to be in the future. Now, by emphasizing relative risk, the Air Force can build a refined schedule to complete the program that will provide both us and our cleanup partners with a powerful tool for ensuring that our cleanups are completed in a timely and cost-effective manner. As our relations with regulators and our communities become more cooperative, all sides can work together to define a schedule of actions that will maintain steady program progress and remain fully protective of human health and the environment.

Gain Efficiencies Through Technology. The Air Force is pushing new answers to clean up our old problems. We have made great strides in technology to determine better methods to clean up the environment and in understanding how to avoid future problems.

Our first broad success was bioventing which is now in use at 136 sites on active bases nation-wide. Recent advances have resulted in natural attenuation being accepted as the best way to remediate some sites. By proper monitoring of the contamination, we have been able to show that some types of contaminants are cleaned up better by natural biology than we can do with chemistry. In some cases this has lowered the cost to remediate a site by an order of magnitude or more. This technology may be applicable to 25% of the petroleum hydrocarbon contaminated Air Force sites requiring treatment (500+ sites); total savings to the Air Force is estimated to exceed $2 billion.

We are also investigating established cleanup standards to ensure we are not spending more than is required on some sites to reach those levels which protect people and the surrounding ecology. These efficiencies and savings allow work to be done on other sites and move the entire program towards earlier completion. This is a significant part of our effort to bring sound science to environmental decision-making. By engaging in national discussions on the cleanup standards for trichloroethylene and petroleum, oil and lubricant cleanup, we are beginning to develop information that indicates these contaminates do not need to be cleaned up to levels as stringent as previously thought.

Maintain Stable Funding. The continued success of new technologies and the new partnering initiatives with the regulators and the public are dependent on stable funding for the environmental cleanup program. We are building a schedule for the program with

the participation and buy-in of the public and the regulators. We must deliver on the promises being made. This can only be done by maintaining stable funding for the environmental cleanup program. If the public or the regulators lose faith in the Air Force's commitment to clean up the environment, they will leave the partnering process and resort to issuing Notices of Violation and Consent Decrees with stipulated fines and penalties for noncompliance.

Budget Request. We are asking for $414.7 M for FY 97. Of this request $26 M will be used to fund studies and $340 M for construction of remediations. In addition, $3.7 M will be used to fund activities under our Defense State Memorandums of Agreement (DSMOA) program. We believe that this is worth much more than the one percent cost to the cleanup program. With Congressional authorization, we intend to pay $640,000 in fines and penalties in FY 97. In terms of relative risk, $287 M will be used to fund activities at high risk sites and $60 M will fund long term operating costs at sites which have remedies in place and operating.

Base Closure

As the Air Force approaches the next millennium, it is well on the way towards shedding the excess infrastructure that resulted from the end of the Cold War. Since the first base closure rounds, we have been working closely with our communities to implement the President's Five Part plan to minimize the economic impacts of the closure. The Air Force base closure cleanup program supports this goal by ensuring that properties can be transferred safely into economic reuse. Although we have made use of leases to accelerate the economic reuse of property, our intent is to transfer all of our properties by deed. We continue to successfully support our impacted communities and fully 47 percent of the available properties are currently in reuse through leases and deeds. I am proud of the hard work our base closure environmental team has done to ensure that properties will be ready for transfer. Now I'd like to highlight the initiatives we are working on to continue this excellent progress.

Remedies In-place at Rounds I through III Bases by 2000. A major milestone on the way to deed transfer of properties is the installation of a cleanup remedy that is acceptable to our regulators and communities. Our goal is to have remedies in place at all 26 bases in Rounds I, II, and III before 2001. This includes 13 bases on the National Priority Listing (NPL).

Accomplishing a cleanup of this magnitude in just twelve short years is clear evidence of the capabilities and dedication of our base closure personnel and the kind of impacts that open and effective partnerships with our regulators and communities can have. At March AFB in California this partnership has reduced the cleanup costs at one

site from $9 million to just $1 million for FY 96. This same team is now working to further reduce costs and accelerate the cleanups.

Accelerate Deed Transfer of Property. Pease AFB in New Hampshire today has all of its remedies in place and operating and we are working in concert with our regulators to develop procedures for meeting our responsibilities under Section 120 (h) 3 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and gain regulator certification that our remedies are operating properly. Once this certification is obtained, we will be able to transfer by deed our properties into civilian reuse. The certification process is new for both us and our regulators and we are now working with them to define this process. We hope that a consistent nation-wide approach can be found that will enhance our ability to achieve certification. Shortly after we receive certification, I expect significant deed transfers of our properties to occur. We could have more than 60 percent of our properties transferred by deed within five years of putting our remedies in place.

Complete Remediations to Reduce Operating Costs. At the same time we are working to define the parameters which will allow us to declare that our cleanups are complete and close our sites. This will serve to reduce the costs of operating and monitoring our remedies, typically the largest part of the cost to cleanup a site.

Apply Lessons Learned to Reduce the Costs and Time to Cleanup Round IV Bases. We are now applying the lessons learned from these efforts to the challenges presented by our Round IV bases. This Round of closures includes two depots, McClellan AFB in California and Kelly AFB in Texas, that have some of the most

complex and difficult cleanups in the Air Force. The challenge is to find a way is to leverage our previous cleanup work to allow for a smooth privatization of these bases in the minimum time possible. We have already begun with a recently completed in-depth peer review of the programs at these bases. The panel that reviewed these programs included regulatory, commercial and Air Force cleanup experts who reviewed each project for technical feasibility and appropriateness. This review has resulted in some recommendations for the cleanup programs at these bases which promise to reduce our costs and time to accomplish cleanup.

Occupational Safety and Health

While the Secretary's and the Chief's goals help guide our efforts, the actual execution of our occupational health and safety program is based upon three aspects of risk: risk avoidance, risk assessment, and risk management.

While risk avoidance is the preferred approach, when risk avoidance isn't possible, such as when maintaining many of our older weapons systems which were not designed with the health of our maintainers in mind, then accurate risk assessment and risk management are imperative in order to adequately protect our people. We are moving out on new initiatives in risk assessment and risk management in both the occupational and environmental health fields. We are developing training for all Air Force personnel to use simple, straight forward techniques to quickly assess situation risks that they may encounter so that they may make intelligent, informed decisions as to whether it is safe to proceed in light of the gains to be made. We anticipate this effort will result in reduced numbers of mishaps and enhanced protection of resources, both human and environmental.

As a result of an effective occupational health program, Hill AFB was able to initiate a process throughout Air Material Command to save over $31 million in compliance costs associated with implementing the new OSHA cadmium standard two years ago. This was accomplished through comprehensive industrial hygiene assessments that demonstrated most of our workers were not in fact exposed above the action limit. Without such a program to adequately assess workplace hazards, protect the health of Air Force workers, and enhance worker productivity, our installations would have to address the potential of elevated occupational illness and injury incidence levels contributing to overhead and weapon system life cycle costs well above current levels.

But our goals are not just reduced risks and costs. We also strive to enhance performance which is reflected by increased efficiency and productivity. The capabilities of our weapon systems are in some cases beginning to challenge the physiologic capabilities of our pilots. Very high task loads and sustained acceleration are two of important occupational stresses that present challenges for performance and occupational safety for our air crews. For example, high performance combat aircraft are capable of sustaining 9G's during combat maneuvers but most pilots can only sustain 9 G's for a brief period of time. While subject to such forces, they are capable of doing little else but fly the aircraft. The Human Systems Center of the Air Force Material Command is currently working on solutions to allow our pilots to withstand these the high G forces for longer periods of time and to also permit them to perform a wider variety of cognitive functions while doing so. Such applied research performed by Air Force personnel in Air Force laboratories will provide our pilots with that crucial advantage necessary to fly, fight, and win.

The Air Force School of Aerospace Medicine in San Antonio, Texas has determined that between 1991-1995 we lost 35 aircraft, at a cost of $400 million, due to pilot task overload and spatial disorientation. Task management training and spatial disorientation demonstration are other examples of where our occupational health program can enhance the capabilities of our air crews. To help avoid these losses this same organization has developed a spatial disorientation simulator which will be used to teach our pilots to deal with the problem at a cost of $18 million to cover the needs of all our pilots. Crew resource training programs and spatial disorientation simulators developed by Air Force human factors specialists will permit all Air Force pilots to obtain the training necessary to more effectively react to combat scenarios as well as in flight emergencies. Such training has the potential of saving many valuable lives and billions of dollars in equipment associated with the loss of aircraft.

To counter the rising number of work-related disorders such as back injuries and carpal tunnel syndrome and the costs associated with them, the Air Force committed $4.3 million in FY 95 toward development, validation, and implementation of a comprehensive ergonomics program. In coordination with the USAF Armstrong Laboratory and the USAF School of Aerospace Medicine, this multi-contractor effort will help our occupational health professionals identify those workers at increased risk for musculoskeletal disorders, train our workers on the prevention of these disorders, and implement the necessary controls to eliminate or reduce the risks associated with ergonomic hazards. Based on experience in private industry, we believe this effort has the potential to reduce the incidence of work-related musculoskeletal disorders in the neighborhood of 50%.

Conclusion

The Air Force is committed to an environmental program that works better, cost less and maintains our freedom. The proactive strategies and strong leadership in the Air Force environmental program significantly enhance the environmental quality at our installations and surrounding communities.

The three environmental, safety and occupational health principles are working in concert to achieve a fully integrated and functional Air Force organization that embodies strategic partnerships, sustains and enhance readiness, and meets the needs of the American public. In the past we were reactive, we are now proactive and instituting an integrated environmental, safety and occupational health program throughout the Air Force. Through this effective integration we provide a program that makes sense, increases productivity, decreases cost, and is good for America.

To ensure our leadership and commitment to attaining results, we will continue to emphasize funding as a critical barrier to future progress in meeting the environmental regulations and goals, and, more importantly, setting the standard for a new civilization that incorporates the environment into our daily lives.

STATEMENT OF ROBERT J. BLACKWELL, SENIOR VICE PRESIDENT OHM REMEDIATION SERVICES CORP. BEFORE THE NATIONAL SECURITY COMMITTEE MARCH 21, 1996

Mr. Chairman and distinguished members of the Committee, I am honored to submit this written statement to you today.

As the nation's largest on-site remediation firm, OHM Remediation Services Corp. supports the FY 1996 Department of Defense Authorization language which sets a goal for DOD by the end of FY 1997 to limit "spending for administration, support, studies, and investigations associated with the Defense Environment Restoration Account to 20 percent of the total funding for that account." (Conference Report 104-450). OHM, as well as other contractors who do not profit from studies, concurs with the National Security Committee that the 20 percent goal is clearly achievable and is good environmental and fiscal policy. It sends the right message to the American Taxpayer.

Comparatively, the private sector generally conducts its environmental remediation projects at an 85 percent to 90 percent actual cleanup level, with only an estimated 10 percent to 15 percent of the total project dollars being spent on administration, support, studies, and investigations.

Clearly, DOD has made extraordinary progress in cleaning up its sites, and, without question, it has the most efficiently run Environmental Restoration program within our government. Companies like OHM have observed this efficiency in the field as more DOD sites are cleaned up and the study and investigation phases are minimized. While in the field working on cleanup sites for the Corps of Engineers, Navy, and Air Force, OHM employees have been informed about this 20 percent goal language by DOD on-site personnel who are excited about the money going to the cleanup projects under their command.

OHM recognizes that certain segments of our industry who profit from more money going towards studies--not actual cleanup--have experienced large gross revenues derived from the years of studies and investigations that have been the trademark of many federal government environmental remediation programs. However, there is an obvious natural evolution of these environmental cleanup programs from studies to cleanup. Many of these sites have been studied for a multitude of years and are ready for the final stage of the process, actual remediation. This 20 percent goal provision acts as an incentive to accomplish what DOD has already been striving to achieve--cleaned up sites.

We applaud the National Security Committee for its effort in adopting this 20 percent provision to ensure that the program continues to be efficiently run and is not overburdened with costly studies and investigations.

Mr. Chairman, I would like to thank you and the Committee members for providing me this opportunity to make a distinction between OHM and the other members of today's panel on this one issue.

NOT FOR PUBLICATION UNTIL
RELEASED BY THE HOUSE
NATIONAL SECURITY COMMITTEE

STATEMENT OF

CHERYL A. KANDARAS

PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY

(INSTALLATIONS AND ENVIRONMENT)

BEFORE THE

SUBCOMMITTEE ON READINESS

OF THE

HOUSE NATIONAL SECURITY COMMITTEE

ON

ENVIRONMENTAL CONCERNS TO THE DEPARTMENT OF THE NAVY

21 MARCH 1996

NOT FOR PUBLICATION UNTIL
RELEASED BY THE HOUSE
NATIONAL SECURITY COMMITTEE

Cheryl Kandaras



Principal Deputy
Assistant Secretary of the Navy
Installations and Environment

Cheryl Kandaras was appointed as Principal Deputy Assistant Secretary of the Navy for Installations and Environment on January 24, 1994. The Office of the Assistant Secretary of the Navy (Installations and Environment) has policy and oversight responsibility for the Navy and Marine Corps installations and bases worldwide and for Navy and Marine Corps environmental, safety, and occupational health programs.

Cheryl Kandaras is a registered professional engineer. Prior to accepting this appointment, she was a county commissioner, commission Chairman, and a partner and director in TSP Three, Inc. and TSP Group, Inc., one of the top 500 engineering and architectural firms in the country.

Cheryl was elected to the Pennington County commission in 1986 and re-elected in 1990. She initiated reforms in the structure and accountability of county government, emergency mental health care, and flood prevention and drainage planning. She introduced employee programs in wages and wellness, which significantly reduced employee turnover and improved morale. As Commission Chair, she served on the first board of the Economic Development Partnership, which joins the county, city and business community to foster economic growth.

Cheryl started her professional career as plant and environmental engineer for South Dakota Cement. Upon receiving her professional registration in 1983, she started her own consulting firm. In 1991, that company merged with TSP, creating an environmental/regulations department for that firm. She became TSP's first woman director and partner.

In her current position of Principal Deputy, Cheryl has directed the day to day work for the entire Department of the Navy in all areas of installations, family housing, bachelor quarters, quality of life facilities, base closure and economic redevelopment. Her ability to build consensus among diverse groups and organize requisite action to accomplish goals has been a fundamental element in the Navy emerging ahead of all other services in execution of Base Closure recommendations and implementation of the President's Five Part Plan for Revitalizing

Base Closure Communities. In addition, the Navy has assumed a leadership role in the positive integration of environmental planning as a key element of force structure, infrastructure and personnel decision making. On behalf of the Assistant Secretary of Defense (Economic Security), she is chairing a multi-service, multi-agency panel to develop recommendations for the Deputy Secretary of Defense for implementation of outsourcing, privatization and public/private partnerships.

Cheryl has served on numerous boards and committees, including Rapid City United Way, South Dakota Democratic Party Treasurer, South Dakota American Association of University Women (AAUW), South Dakota Health Benefits Trust, and the National AAUW Governance Task Force. She was named Rapid City Business and Professional Women's Outstanding Young Business Woman and Rapid City Engineering Society's Outstanding Young Engineer.

Cheryl Kandaras was born on July 22, 1955, in Arlington, Virginia, and grew up in Mitchell, South Dakota. In 1973 Cheryl graduated from Mitchell High School. She attended Augustana College in Sioux Fall, SD, and graduated from the South Dakota School of Mines and Technology in Rapid City, SD, in 1978 with a B.S. in Civil Engineering, and a B.S. in Mathematics.

Cheryl is married to Mr. Malcom Chapman of Chicago, Illinois. She has two children; Lesley, age 15, and Michael, age 12.

Good day, Mr. Chairman and members of the Committee. I am Cheryl A. Kandaras, Principal Deputy Assistant Secretary of the Navy, Installations and Environment. Even though I will not testify before you today, I am submitting this written statement on two topics of particular importance to the Department of the Navy's environmental program: shipboard solid waste management, and devolvement of the Defense Environmental Restoration Account (DERA) to the Military Services.

Shipboard Solid Waste Management

The FY-94 Defense Authorization Act (PL 103-160 November 20, 1993) amended the Act to Prevent Pollution from Ships (APPS) to extend the deadline for the Navy to comply with discharge restrictions on plastics at sea and solid waste in designated "special areas" of the world's oceans and seas.

Shipboard Plastic Waste

The Navy recognized the hazards that plastics pose for marine life and began a research effort in the mid-1980s to find a technological solution. The Navy later initiated a program to reduce the volume of plastics brought aboard ship, and directed ships to retain food contaminated plastic waste for the final three days at sea, and non-food contaminated waste for the final 20 days at sea...the so called 3/20 rule.

Research investments successfully developed a plastic waste processor (PWP). The PWP first shreds the plastic into small chips, and then a separate heat unit melts, sanitizes and compresses the plastic into round discs weighing about 15 pounds. With a PWP, all plastic waste, including food contaminated plastic waste, can be safely stored aboard ship for disposal when the ship returns to port.

The FY-94 Defense Authorization Act extended the compliance deadline for plastic discharges from surface ships to 31 December 1998, codified an installation schedule for the PWP, and made the Navy's 3/20 rule a law.

The PWP installation is on track. The first production contract was awarded to two firms in August 1995. The first production PWP will be installed on the USS VANDERGRIFT, FFG-48, by 1 July 1996, the date mandated by the Act. All other milestones will be met including the 31 December 1998 deadline.

The Navy has not overlooked responsible management of its compressed plastic waste. The Navy is currently working through a Cooperative Research and Development Agreement with a small business manufacturer to use the recycled plastic disks as a component for environmentally sound marine pilings designed to replace creosote-impregnated wooden pilings.

Shipboard Solid Waste

Annex V of the international convention known as MARPOL banned the discharge of solid waste, except food waste, from commercial ships in certain bodies of water designated as "special areas." Special areas, which include the Baltic Sea, the North Sea, and Antarctic Ocean, are so designated because of their confined nature and environmental sensitivity. Additional designated areas include the Mediterranean Sea, the Persian Gulf, Red Sea, the Black Sea, and the greater Caribbean Region which will come into effect upon a finding that shoreside reception facilities are available.

Even though MARPOL exempted warships, the FY-94 Act reaffirmed the goal that the U. S. Navy ships meet the solid waste discharge restrictions in special areas. It extended the compliance deadline to 31 December 2000 for surface ships, 31 December 2008 for submarines, and directed the Secretary of Defense to submit a report to the Congress by November 1996 on the Navy's plans for achieving compliance.

Consider the magnitude of daily compliance with the APPS. A ship at sea is like a small town with many of the same management concerns, including the generation and disposal of solid waste. Last year the Navy had 224 surface ships with crews ranging in size from about 300 for a frigate or cruiser to over 5,000 for an aircraft carrier. Our studies have shown that sailors generate approximately 3 pounds of solid waste per day per person when the ship is deployed. Approximately 35 percent of that trash is paper, 18 percent is glass, aluminum and other metals, 7 percent is plastic, including food contaminated plastic, and 40 percent is food waste. This amounts to approximately 900 pounds of garbage per day on the frigate, and almost 8 tons per day on the carrier.

On a typical deployment lasting 6 months, the frigate will generate somewhere around 83 tons of garbage, and the carrier will generate almost 1,400 tons. There is no weekly curb side refuse service to pick up this garbage, and no landfill on the ship to safely store or dispose of it. Yet, how can the U. S. Navy manage the volume of solid waste generated daily if the practice of overboard discharge is no longer acceptable?

Since passage of the Act, a senior level effort has worked to identify the most cost-effective solid waste management plan for our warships. In May 1994, the Under Secretary of the Navy established a Ship Solid Waste Executive Steering Committee, or Steering Committee, chaired by the Deputy Assistant Secretary of the Navy for Environment and Safety. Also included on the Steering Committee are flag officers and senior civilian executives representing the Assistant Secretary of the Navy for Research, Development and Acquisition, the General Counsel of the Navy, and the Chief of Naval Operations. Since 1994, the Steering Committee has reviewed numerous issues and alternatives for shipboard solid waste management.

In September of 1994, a public symposium was sponsored in Alexandria, Virginia to solicit input from the public and industry. Representatives from private industry,

environmental and marine conservation groups, and Congressional staff attended the daylong session. Participants were advised of a number of different disposal technologies and management practices including:

- Source reduction to reduce the amount of waste material brought aboard ship;
- Onboard destruction, such as incineration and more exotic technologies such as plasma-arc pyrolysis;
- Retention and retrograde, where garbage would be sorted and stored onboard the ship until either at-sea transfer to a supply ship, or the ship returned to port;
- Process the refuse using devices to first pulp and/or shred it into an environmentally benign form and then discharge it overboard.

Following the public meeting, the Steering Committee approved a number of studies to develop a broad scientific base upon which to develop a recommended course of action.

- The Center for Naval Analyses studied retention and retrograde considerations.
- The National Academy of Science reviewed technology opportunities for the foreseeable future.
- The Naval Sea Systems Command assessed the size, cost, technical maturity, and operational factors for all alternatives under consideration.
- The Naval Supply Systems Command quantified source reduction opportunities as a means to minimize non-plastic solid waste disposal requirements.
- The Bureau of Medicine in the Department of the Navy initiated a health risk assessment of the alternatives under consideration.
- The Naval Command, Control, and Ocean Surveillance Center collaborated with the University of Georgia, Scripps Institute, and the National Fisheries Service to perform an environmental analysis of discharges from the pulper and shredder.

Upon conclusion of these studies, the Steering Committee assessed the impact on vessel operations, crew safety and habitability, environmental effects, and cost of each alternative.

Source reduction is a key component of the overall solid waste management effort, and it is being pursued aggressively, although it will not be enough to solve the problem. Although incineration was a possible approach, it would have severe adverse space and weight impacts, and would cost over $1 billion to implement safely. Storage and retrograde of solid

waste would consume too much shipboard space, adversely affect operations at sea when the garbage is transferred to a supply ship or a garbage barge, and would also cost roughly $1 billion to implement, including the cost of several new garbage reception vessels that would be needed. Based on the recommendations of the Steering Committee, pulpers and shredders were identified as the best solid waste management practice for U. S. Navy ships. The pulpers will convert paper and cardboard garbage into a sea water slurry for overboard discharge. The shredders will cut metal cans and glass to pieces, which will then be bagged and dumped overboard where they will quickly sink and degrade over time. Studies show that pulper and shredder effluent is benign in the marine environment. The pulpers and shredders do not adversely affect operational capability of our ships, and, at about $300 million to buy and install, are the least costly of the alternatives.

Fleet Commanders strongly support this alternative and would like to have this equipment installed on Navy ships as soon as possible. Pulpers and shredders would actually enhance operations because pulped garbage can be discharged from inside the ship during heavy weather and flight operations. Right now, ships are making every effort to hold garbage onboard, but they don't have adequate space or equipment to do so. Needless to say, this degrades shipboard quality-of-life for sailors.

This equipment will be used worldwide, not just in special areas. For a relatively moderate cost, this equipment would make life better for sailors, enhance operations, and eliminate floating garbage from U. S. Navy ships.

Findings were briefed on 1 February 1996 to key federal agencies. Additional briefings were provided for the White House Council on Environmental Quality, Office of Management and Budget, and National Security Committee staff. Extensive public involvement has been a key component of our overall effort in this area, including the use of the Keystone Center to facilitate two meetings of representative stakeholders to discuss ship solid waste issues. In addition, four public meetings have been scheduled over the past year.

The Department of the Navy continues discussions with key federal agencies and environmental organizations, and will submit a final report by November 1996, as required by the FY-94 Act.

Devolvement of the Defense Environmental Restoration Account

On 3 May 1995, the Deputy Secretary of Defense signed a memorandum to devolve, or in other words, decentralize DERA to the Military Services. This action was taken after considerable study and evaluation by a working group chaired by the Deputy Under Secretary of Defense for Environmental Security [DUSD (ES)], the participation of the Services, and after much discussion by Senior levels of the Services and the Office of the Secretary of Defense.

DERA has been a centralized DoD account for which the Services submitted requirements for funding to the DUSD (ES). The DUSD (ES) aggregated these requirements and defended resources needs at the OSD level. Under devolvement, the identification of requirements and allocation of resources begins within the Services, and then is reviewed at the OSD/OMB level, just like all other Service programs, prior to submission to the Congress as part of the President's budget.

The Department of the Navy recognizes the concerns that the Conferees noted in the FY-96 Authorization Act regarding visibility, oversight, and savings of a devolved DERA account. The devolution of DERA is major change in how restoration funds are managed within the Department of Defense. However, even though legislation is needed to fully implement it, it will have no impact on Congressional visibility or oversight. The additional management scrutiny, responsibility and authority by Service program and budget offices will strengthen the program.

Evolution of the Restoration Program

The 1986 Superfund Amendments and Reauthorization Act (SARA) formally established DERA as a small, separate DoD account for conducting environmental restoration, and did not want it to compete with current operations for funding. A total of $360 million was authorized and appropriated for DERA in that first year.

The scope, funding levels, management direction, and relationship with regulators have changed significantly since then. At that time, we had little knowledge of the nature and extent of contamination on our bases, how much it would cost to clean up, and how long it would take. The fear that the Department of Defense had countless contaminated sites like the infamous "Love Canals" on our bases set the stage for an adversarial relationship with regulators. The Department of Defense adopted a policy of signing agreements with regulators as soon as possible as a sign of good faith. Expediency more so than economy dominated the action. The agreements would also support funding requirements.

Today's construct of the cleanup program is far different. We are budgeting to a stable funding level, and ranking projects with a risk management approach in consultation with communities and regulators. Stable funding and risk management are essential for effective and efficient program management.

We have identified virtually all of our contaminated sites and have completed or have underway analyses at 72 percent of those sites. We plan to spend over 70 percent of our FY-97 budget request on actual site cleanups, not studies. We have moved from an adversarial climate to a cooperative one by partnering with regulators and the communities and openly sharing with them the results of our studies and proposed cleanup solutions. Stakeholder participation through our Restoration Advisory Boards and formal partnering agreements with regulators have proven very successful. These initiatives have provided an unprecedented level of oversight, advice, and teamwork at the installation level. We have empowered our

field managers to work closely with stakeholders and make cleanup decisions. This "bottom up" requirements identification and oversight has negated the need for a centralized DERA account. A decentralized approach is the most efficient and cost-effective method to achieve our program goals.

The DERA budget request has grown enormously - peaking at $2.4 billion in FY-94. This unconstrained program growth has come under scrutiny both within the Department of Defense and by the Congress, which has successively cut funding in each of the last 3 years to the $1.4 billion level appropriated in FY-96. We are implementing risk management to better prioritize our cleanup effort, instead of relying on the mere existence of signed legal agreements to drive funding requirements as we did in the past. And we are an ardent supporter of stabilized funding at current levels. We are working to revise previous agreements accordingly.

Benefits of Devolving DERA

The time is right to devolve DERA to the Services. The intent that DERA not compete with funding for current mission needs is a myth - it has always competed at the DoD level. The DoD has a fixed topline budget, and DERA has always been a portion of that budget request. Any decision to increase DERA funding came at the expense of other DoD programs, impacting Service budgets without direct Service participation. Devolution brings DERA requirements and funding decisions within the Services where it belongs. There are numerous benefits to this approach:

- Integrates environmental restoration into the full Planning, Programming and Budgeting System used throughout DoD to make resource allocation decisions. Because DERA was an OSD account, restoration requirements were not scrutinized outside the Services' environmental offices. With devolvement, environmental restoration is treated like every other Service program. POM and budget managers within the Services will now review restoration resource requirements and execution assumptions. We have already seen the benefits of the Navy's POM and budget offices applying their considerable management skills to the restoration program.

- Aligns responsibility, accountability, and funding. The Services have always executed the program and been accountable for performance, but had no direct control over program and budget decisions. Devolvement aligns accountability, responsibility, and funding together under each of the Services. It makes requirements identification and resource decisions for environmental restoration an internal, not external Service decision. The Services now have an incentive to consider affordability prior to signing agreements with regulators promising future restoration actions. Policy and program oversight remains with the DUSD(ES).

- Allows full competition of restoration resource needs within the Services. As I mentioned, restoration funding has always competed for Service funding at the OSD

level. With devolvement, restoration funding decisions are first fully vetted through the Service chain of command. We want our flag officers to become just as knowledgeable about environmental restoration as they are about environmental compliance.

- Provides early access to restoration funds. Currently, authorization and appropriation changes to budget amounts go through a lengthy allocation process within OSD before fiscal year funds are distributed to the Services for execution. It has not been unusual to receive initial fiscal year funds four months or more after the fiscal year began, creating a cash flow problem within the Services. By establishing Service restoration accounts, devolvement will significantly speed up the distribution of funds at the beginning of the fiscal year. That will allow for earlier obligation of funds and a more balanced program execution through the fiscal year.

Devolvement means that environmental restoration will be afforded the same level of OSD oversight as every other Service program. Just like all other Service programs, environmental restoration funding is subject to the same policy guidance provided to the Services in the annual Defense Planning Guidance signed out by the Secretary of Defense. Just like all other Service programs, the cognizant OSD office [in this case the DUSD (ES)] exercises the same policy and management oversight over the Services through Department of Defense instructions and other policy directives. Just like all other Service programs, restoration program decisions are reviewed during the Summer Program Review by the Director, Program Analysis and Evaluation of the OSD staff with the participation of the DUSD(ES). And just like all other Service programs, Service restoration budgets will be reviewed by the Under Secretary of Defense (Comptroller/Chief Financial Officer), also with the participation of the DUSD(ES). These and other reviews ensure a consistent overall approach to funding environmental restoration across the Department of Defense.

The Department of the Navy was the first to advocate the concept of devolution. As a result of devolvement, we have integrated our environmental restoration requirements into the same rigorous assessments all other Navy and Marine Corps programs undergo. The results of those assessments, including that for environmental restoration, are being reviewed by the senior military and civilian leadership of the Department of the Navy. We are building a corporate understanding of the need to continue to cleanup contamination from past practices, and there is strong support within the Department of Navy for maintaining stable funding for this program.

The Department of the Navy urges your support for the DoD legislative proposal to devolve DERA in the FY-97 Defense Authorization Bill.

Environmental Cleanup of Energy and Defense Facilities: A National Laboratory Perspective

House Committee on National Security

Joint Hearing

Subcommittee on Readiness
Subcommittee on Procurement

March 21, 1996

Dr. Jay C. Davis
Associate Director for Environmental Programs
Lawrence Livermore National Laboratory

Chairman Bateman, Chairman Hunter, and Members of the Subcommittees, I am pleased to appear before you to discuss the current status of the cleanup of defense-related facilities in the United States, and of the possibilities of cost reduction and acceleration of this enormous process. I understand your concerns about the impacts on readiness of these activities, and your concerns that the taxpayer is receiving both wise investment and full value from them. I will try to give you the most honest possible impression of where this process stands and then will be glad to respond to any questions you may have.

It is perhaps useful for the Subcommittee to understand a bit of my personal background to help put my comments in perspective. I am an experimental nuclear physicist, having spent nearly twenty-five years at Livermore as both a research leader and engineering project manager. I have built accelerators and other research facilities for use in areas as diverse as nuclear physics, magnetic fusion, laser isotope separation, and, as such, have a project manager's approach to most technical tasks. Such activities should have clearly defined goals, budgets, and endpoints. I have kept my professional interests active in national security affairs as well, developing and evaluating technical means for treaty verification and serving as a physics and operational leader in two of the confrontational inspections of Iraqi nuclear facilities in the summer of 1991. My principal personal research interests are in the application of accelerator and isotopic techniques to problems as disparate as the dosimetry of carcinogens and mutagens, the mechanisms of global climate change, and the development of verification techniques for nuclear arms control. I currently serve as the Livermore Representative on the Strategic Laboratory Council. This is the Laboratory advisory body tasked by the Assistant Secretary for Environmental Management of DOE to assist him in coordination of laboratory activities and in devising and planning program initiatives as he desires.

The directorate that I head at Livermore contains the bulk of the Laboratory's capabilities for research and development applied to environmental matters in the broadest sense of national security. Our atmospheric science capabilities are applied to global climate issues, regional precipitation and water budget studies, and we provide and operate the national advisory service for the tracking and dosimetry of the release of radioactive and toxic substances in the atmosphere. Our geophysical scientists have the lead DOE role in seismic verification of the Comprehensive Test Ban Treaty and provide risk assessment and structural engineering advice to manage the risk and consequences of seismic hazards in areas such as California. Our ecological scientists are involved in assessment of the pathways and bioavailability of toxic and radioactive materials and in the reconstruction of exposures in past nuclear events such as Hiroshima, Nagasaki, and Chernobyl. Finally, the geochemists, geophysicists, chemists and chemical engineers in this program develop and deploy technologies for remediation of contaminant plumes, and to assess and manage wastes left behind by decades of research and production operation in the Department of Energy. As you can see, our portfolio is much wider than just

cleanup; we are involved in environmental issues and use environmentally relevant scientific and engineering skills across the wide spectrum of national security.

I would like to focus my comments on three principal issues: the role of the national laboratories in environmental matters, the changing state of the national program in restoration and cleanup, and some parochial examples of our own work that I think show that there is hope for cost reduction and acceleration of this business.

Role of the National Laboratories

Unlike previous missions, such as development of nuclear weapons, nuclear power and much of the research in the nuclear, particle and fusion areas, environmental work at the DOE laboratories is a widely shared mission, not one wholly controlled by us. Our principal activities in the environmental arena are properly limited to developing fundamental science to understand, assess, and prioritize risks and actions, and to the development of technologies to contain, control, and remediate environmental insult resulting from previous operations or to avoid it in future operations. In carrying out this mission, we are partnered with the national community in ways we have not been previously.

• We must be seen as a credible and responsible partner with the publics around our facilities and the larger national public that has distrusted us in the past.

• We must develop relationships of trust with local and regional regulators who were excluded from our facilities and were not allowed any oversight role in the recent past.

• We must work with multiple agencies, not just DOE, as our skills are relevant and appropriately applied to the problems many of them have. Our scientific results often must be validated or used by others if they are to have impact on regulations and priorities. The environmental business of the United States is executed by multiple organizations, ours just one among them. Partnering in this fashion is essential to achieving both leveraging for cost purposes and to obtaining review and validation necessary for credibility.

• We must learn to work effectively with corporate partners who will validate the effectiveness and economics of our technologies and apply them at commercial costs and reliability on the national stage. We accept that it is not a mission for the national laboratories to be cleanup agencies, even on their own sites.

• We must partner with the research universities to access their disciplinary skills and couple them with our applied and developmental skills to create both new understandings of risk and new technologies to control and recover from

environmental insult. They are not our competitors in this arena, we each bring essential skills to the problem.

• The national laboratories must learn to work as a system, not as competitors to execute this mission. Assistant Secretary Reis has accomplished this for the three Defense Program laboratories in their mission areas. Assistant Secretary Grumbly has all ten of the multi-purpose laboratories (which includes the Defense Program laboratories) well along the path of developing the same style in the environmental management area.

• Finally, and of great importance, we must partner with both the American public, our own agencies, and the Congress to accept the charge to continuously drive down the costs and shorten the time scales of environmental recovery. We cannot accept fifty year projections of cost. We must build repeated review and reanalysis into our efforts without allowing review and reanalysis to become an excuse to delay action. We will have to learn and improve as we work.

This style of partnering and working the problem in public is very different than our mission style of the past, particularly for the defense laboratories. I think I can say to you that we understand how we need to execute our tasks and are doing so in the right fashion. We are embracing a cultural change and evolving as we master this task.

The Changing Nature of National Environmental Cleanup

The national effort in this area, particularly as applied to the problems created by national defense activities during the Cold War, began with the commendable desire to restore all sites to a virgin and pristine state, to create conditions of zero risk, and under economic assumptions (perhaps innocently based on naive technological assumptions) that cost was no object in the activity. The definition of clean and zero risk was often based on regulations that contained little scientific assessment of real risk, or were in fact based on *deminimus* values associated with the detectability of substances, not their effects. We have learned in the years since that we cannot in fact afford the costs of cleanup to such levels, that such cleanup may not be technically possible, and that such an approach often squanders resources on minor risk, or no risk, while leaving inadequate resource and attention for higher priority matters. We have learned that land has been driven to zero value or made unavailable for release and beneficial use or redevelopment.

In consequence, the national program has begun to change for the better.

• DOE, particularly under the leadership of Assistant Secretary Grumbly, has forced its contractors to become cost and performance oriented, comparing themselves to corporate benchmarks. In many cases DOE is switching to

corporate providers of services, moving contracting for such work toward fixed priced structures as experience is gained and technologies mature.

• DOE has initiated a basic science program to support the needs of environmental cleanup. Congress brought this program forward one year by providing resources in the current fiscal year. There has been an enthusiastic and focused response from the national community. Selection of the initial projects is in progress now.

• The Congress has instructed the Environmental Protection Agency to access the skills of the DOE laboratories in carrying out its mission. The Agency has responded to this charge with enthusiasm. In just the past week, I have been involved in discussions at the EPA on research and assessments of mutual interest and in developing mutual understanding of portfolios and needs. We are enthusiastic about both the research and regulatory impacts of this relationship.

• EPA has reorganized itself along the paradigm of risk assessment, providing a way to better prioritize its activities, and suggesting that measured and evaluated risk, rather than cleanup to rule, may drive future regulatory actions.

I would not want to over promise that these changes will offer immediate effect. What you should know is that we at the laboratories have heard, and fully accept, both the Departmental and Congressional message that these activities are to cost less, are to be brought to completion faster, and are not to be job programs at our sites. The elements of change that I have described are a necessary part of a broad process that will integrate basic and applied science, technology development and demonstration, transfer to industrial deployment, and continuous reexamination of the scientific and risk basis of regulation. This process must continue indefinitely. We have accepted the assignment of putting ourselves and the production sites out of the cleanup business as fast as possible, retaining the appropriate research role as the provider of new understanding and technology that will allow us to continually attach the baseline cost and schedule of this program.

Examples of Success

I want to cite several examples of recent accomplishments at Livermore that have affected cost and that are capable of export to other sites and of implementation by American industry. I have picked these not because Livermore is unique, though we of course think we are excellent, but because I know them in detail.

• Dynamic Stripping - By combining electrical heating and steam injection applied one hundred feet below the surface of the ground, we have recovered a spill of 10,000 gallons of gasoline that was in contact with the ground water

below our site. In what was basically a research and development experiment, the gasoline was recovered at a cost a tenth of that of conventional excavation techniques and in a time of nine months instead of the decades that pump and treat would have required to remove this material from the gravel and clay mixture below our site. Treatment at this site has been terminated and monitoring at six month intervals is all that the local regulator requires. The technology has been exported and is currently being implemented at an industrial site in Southern California at a factor of three reduction in cost from our research application. Several military sites are being considered for cleanup with this technology at present.

• Accelerated Cleanup of the Livermore Site - The main LLNL site is an active Superfund site because of a trichloroethylene (TCE) spill resulting from operations when Livermore was a Naval Air Station and engine rework facility during World War II. The remediation with pump and treat planned in the present Record of Decision for the site is estimated to require between twenty and fifty years at a cost variously estimated to be between $300 million and $500 million. It is important for you to realize that the Baseline Environmental Management Report (usually referred to as the BEMR) that summarizes the current cost of cleanup of DOE sites has no estimate for the cost of ground water remediation since no methodology could be found to estimate one. The overall costs are literally unknown.

We are proposing an accelerated cleanup of our site using a combination of the thermal methods successfully demonstrated in Dynamic Stripping with bioremediation techniques we demonstrated last year in a joint project with DOE on a private site. This project has the potential to bring remediation to an end on our site in a five to seven year period. Actual site closure will depend on the regulations in effect at that time and the degree of residual monitoring and containment activity required by the regulators. In doing this project, we will involve a corporate partner whose responsibilities will include the technical assessment and economic evaluation of our work, and the development of a business plan to implement it at other sites. In discussions to date with parties interested in such a relationship, we have been told that one year into the Livermore project, they would be confident enough to bid the technologies at fixed cost at other sites. As trichloroethylene is the most common contaminant at both federal and industrial sites around the country, success in this transfer to industry could have great impact on cleanup costs nationwide. Our residual role in such a success would be in the continuing development of bioremediation and mobilization techniques for other classes of contaminants, leveraging both federal and corporate research support to add to an expanding corporate tool kit. This ongoing research and development role is precisely that appropriate for a national laboratory.

• The LUFT Study - We have recently completed and published a study of the threats to ground water posed by Leaking Underground Fuel Tanks. This study,

commonly referred to as LUFT for obvio is reasons, exemplifies exactly the partnership relationship I mentioned early. The study was jointly funded by the EPA and Mobil Oil Corporation (a 90/10 split) and executed by Livermore staff and faculty in industrial and risk assessment departments from four campuses of the University of California. Having sampled a data base containing characteristics of several tens of thousands of fuel tank sites scheduled for remediation in California, the study came to the conclusion that once the leaking tank and the soil immediately around it were removed, further active treatment was necessary in only a small minority of cases. In most cases, natural bioremediation processes will destroy the benzene component of the plume (the principal carcinogen) before it reaches water that will be used for human purposes. This simple $300,000 study is producing a rule change that will avoid a $1.5 billion cost to California taxpayers, and an equivalent cost to California property owners. The results of the study are not without controversy, the rate and extent of application of the rule change is still under debate, but the end consequences are clear. This study will produce remediation of risk rather than remediation to rule. Such a change in mindset is necessary if we are to have environmental quality at a cost and on a schedule that the nation can afford.

Conclusion

I hope that I have convinced you that we have the attitude, the skills and the motivation to contribute to an acceleration in the schedule and a decrease in the cost of cleanup of federal sites, and to bring considerable benefit to industrial cleanup as well. I cannot offer you a silver bullet that guarantees a factor of ten reduction in these costs. I certainly believe that if we apply the scientific and technological skills of the national laboratories and bring in the implementation and process management techniques of industry, that a factor of three may be possible in many of the cost components of cleanup. We have only begun to implement the R&D, regulatory, and management changes necessary to solve this problem. Our systems and approaches should evolve from measured successes and failures. We are attacking a complex problem that was forty years in the making. Technologically, it is a challenge equal to that of creating the weapons systems that sustained us through the Cold War. We certainly bring the same degree of commitment to this task that we did to its predecessor.

I will be happy to answer questions or provide clarification of my remarks.

RECORD VERSION

STATEMENT BY

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ACTING DEPUTY ASSISTANT SECRETARY OF THE ARMY

(ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH)

OASA(I,L&E)

BEFORE THE

MILITARY PROCUREMENT SUBCOMMITTEE

AND

READINESS SUBCOMMITTEE

HOUSE NATIONAL SECURITY COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

SECOND SESSION, 104TH CONGRESS

REGARDING

THE ARMY ENVIRONMENTAL PROGRAM

MARCH 21, 1996

NOT FOR PUBLICATION
UNTIL RELEASED BY THE HOUSE
NATIONAL SECURITY COMMITTEE

Mr. Chairman and Members of the Subcommittee:

I appreciate this opportunity to appear before this subcommittee and submit this written statement on the Army Environmental Program.

The Army remains steadfastly committed to environmental stewardship. Our environmental program is an essential element of our mission to defend the Nation with forces of sufficient size and versatility to meet wide ranging threats. We are also the protectors of fundamental values shared by the American people and always strive to set a responsible example of good citizenship. The Army environmental program focuses on protecting people, natural and cultural resources, equipment, facilities, and land the American people entrusts to us.

The Army's environmental program is unique among the Services in that it has both military and civil responsibilities. My testimony today, however, will address only the military environmental program.

The Army does not view the "environment" and "our mission" as an either/or proposition. Environmental stewardship is inseparable from Army operations. Sound stewardship is value-added to training and readiness, and enhances the quality of life for soldiers, civilians, and their families and assures sustainability of our assets necessary to carry out the military mission.

The Army environmental program enjoys the full support of both the Secretary of the Army and the Chief of Staff of the Army. As stated by General Dennis J. Reimer, "The environmental ethic must be a part of how we live and how we train. Protection of the environment is the key to ensuring we can continue to conduct tough, realistic training and keep the Army trained and ready in the future." General Reimer has established goals to integrate environmental considerations into all Army decisions, prevent pollution at the source, protect and wisely use natural and cultural resources, comply with all applicable environmental laws, and clean up installations as rapidly as resources permit.

The impact of environmental considerations on Army readiness is real. As we continue to build-down and our base structure declines, additional pressure is placed on remaining land, air, and water resources necessary to support a trained and ready force. Tough, realistic training is the cornerstone of readiness. In support of this requirement, rigorously managed use of the remaining land will provide the maneuver areas necessary to sustain a fully trained Army. Anticipating and planning for the effects of military activities upon the environment and the natural and cultural resources will continue to be very important investments in the Army of the future. Effective training demands realistic and productive natural resources.

The success of our Army depends on the quality of our soldiers and civilian work force. Our soldiers and civilians continue to serve with distinction because they truly love the Army. Quality of life is one of the most important factors in a soldier's decision to reenlist in the Army. The Army is committed to improving the quality of life for our soldiers and their families. Every soldier and civilian is entitled to a safe and healthful workplace free of environmental hazards. While our soldiers are facing the many stresses that come with increasing operational tempo (OPTEMPO) of overseas deployments and family separations, they must be assured that their family members are safe and their needs are met.

Modernization is one of the Army's greatest challenges as we move into the 21st century. Most of the hazardous materials used in our facilities result from the material

acquisition process. Therefore, an important program for the future is substituting new and innovative technologies for obsolete industrial equipment and processes that produce costly wastes. People in private industry learned a long time ago that reducing or preventing pollution makes good business sense.

ARMY ENVIRONMENTAL STRATEGY

The Army Environmental Program is founded on the vision of being a national leader in environmental stewardship. On November 19, 1992, the former Army Chief of Staff, General Gordon R. Sullivan, and the late Secretary of the Army, Michael P. W. Stone, formally signed the "U. S. Army Environmental Strategy into the 21st Century." This comprehensive document articulates the Army's commitment to meet present and future environmental challenges. Throughout the strategy, the primary values and themes are merged into the vision that clearly demonstrates leadership, preserves and enhances the environment, and illustrates the Army's desire to achieve continued excellence in stewardship. This comprehensive strategy governs all Army activities and provides a structure and framework to meet growing environmental challenges into the next century.

The Army's environmental strategy depicts a model of a building with a foundation and four pillars, or key program areas, supporting the total vision of environmental stewardship. The four pillars are: Pollution Prevention, Conservation, Compliance, and Restoration (Cleanup). The Army has established goals for each of these pillars. Environmental Technology is one of its foundation building blocks.

Pollution Prevention--includes efforts to reduce or eliminate pollution at the source. The Army goal is to prevent future pollution by reducing hazardous materials usage and toxic releases. Prevention involves instilling an environmental ethic that will change behaviors to help avoid future compliance and cleanup problems. We vigorously pursue state-of-the-art solutions to avoid future problems. Our goal is to significantly reduce waste and disposal costs by examining industrial processes, manufacturing techniques, and product design to minimize or eliminate the generation of hazardous waste and reduce the use of hazardous materials. Workplace safety is enhanced. Occupational health of the workforce is protected. Wise pollution prevention practices enhance our overall mission readiness by reducing purchase quantities and inventories of stored hazardous materials, and eventually hazardous waste generation and disposal. Pollution prevention can also result in more efficient ways of conducting business and produce non-environmental savings.

Conservation--means we conserve and preserve our natural and cultural resources. Conservation focuses on effectively managing and sustaining Army lands to ensure long-term natural resource productivity. Preservation focuses on resource protection. If we do not maintain our training lands and resources today, they will not be available to train America's soldiers for their missions in the 21st century. Our conservation program must pass the following three tests: support the mission; sustain the ecosystem; and be fiscally sound. The Army is the steward for nearly 12 million acres of public lands. We do not own this land; we are caretakers of the land and the plant and animal species that inhabit it. The American people entrusts the land to our care, and we shall fulfill their trust. We shall conserve and protect these resources for the future.

Compliance--gives immediate priority to sustained compliance with all applicable environmental laws. The Army objective is to ensure that all current operations at our

facilities comply with applicable Federal, state, local, and host nation environmental requirements. Failure to meet statutory and regulatory standards and requirements results in fines and penalties and can impact the readiness of our forces by restricting or prohibiting operations. Environmental compliance at an installation is a command responsibility. Our installation commanders have an extremely difficult task in achieving compliance with a wide variety of environmental laws and implementing regulations.

Restoration (Cleanup)--restores previously contaminated sites as quickly as funds permit, whether the site is still within the Department of Defense (DOD) inventory, (i.e., an active and/or Base Realignment and Closure (BRAC) site) or a Formerly Used Defense Site (FUDS). Protection of human health and the environment is the overarching goal for our restoration program. Using the "relative risk" concept for cleanup, the Army is working hard to ensure that the health and safety of people living in the communities near our installations and employees and residents of our installations are protected. We are expediting cleanups to facilitate disposal of excess Army properties for local reuse.

Environmental Technology --focuses resources to achieve rapid prototype testing of new technologies for early field testing and regulatory certification to allow quick exploitation. The environmental technology program supports the Army environmental strategy through a partnership with user and the technology communities. The environmental technology program can reduce the "cost of doing business" and minimize the drain on our limited resources.

BUDGET

Senior leadership direction, involvement, and support continues to be strong and visible. Our senior leadership's resolve is demonstrated by the commitment of significant resources to meet environmental responsibilities. I believe the budget request will allow us to continue our efforts to comply with laws and regulations and exercise prudent environmental stewardship. We have stemmed the growth in environmental programs of the past few years and anticipate stable to slightly declining funding levels in the future. In fiscal year (FY) 1996, we plan to spend about $1.6209 billion for all Army environmental programs. Our FY 1997 budget request is $1.4254 billion.

ACCOMPLISHMENTS and INITIATIVES

I am truly proud of the tremendous strides America's Army has made to meet the myriad of environmental challenges. I am pleased to highlight areas where our efforts are especially noteworthy and present some of the more notable ongoing or future initiatives.

First, after successful field testing in FY 1995, the Army Chief of Staff directed full fielding of the Installation Status Report (ISR), Part II (Environment) in FY 1996. The ISR is a decision support system that establishes Army-wide standards, assesses environmental compliance and program performance, summarizes environmental conditions, measures environmental mission impacts, enhances the importance of pollution prevention, and articulates resource shortfalls and outcomes. Commanders annually complete media-specific assessments that are compared to generic performance standards resulting in green, amber, and red media ratings that are converted to Army program condition C-ratings. The goal of the ISR, Part II, is to capture the macro-level status of the environmental program at Army

installations to improve the justification and prioritization of limited resources. Installations will submit initial reports through their major commands in June 1996.

Second, under the DOD-directed initiative, the Army established four regional environmental offices at Atlanta, GA; Aberdeen Proving Ground, MD; Kansas City, MO; and Commerce City, CO, for Environmental Protection Agency (EPA) Regions IV, V, VII, and VIII. These Regional Environmental Coordinators represent DOD interests with respect to Federal, state, and local environmental laws and regulations. They help reduce conflicts, bolster cooperation, and generally improve relationships with the Federal, state, and local environmental regulators.

Finally, the Army Environmental Policy Institute (AEPI) continues to help us manage today's issues, even as it explores and defines the range of plausible future issues and policies that are responsible managers of risk. AEPI lends further strength to Army long range strategic planning through combining the best of foresight techniques and information technology, enhanced by partnering with the Nation's best experts from industry, academia and other government agencies. It is charged to look and think ahead to develop cost-effective future environmental policies and strategies to address environmental issues of significant importance to the Army. This Congress has specifically requested that the AEPI establish and direct an Environmental Policy Simulation Laboratory (EPSL) to develop policy simulation models for air, water, soil, noise and visual pollution from military operations. AEPI has defined the mission of EPSL and conceptualized a functional network that will partner with the best policy analysts, environmental technologists, economists and risk assessment and management expertise worldwide. This network will be established inexpensively through the worldwide web. Previous Congresses have requested AEPI's assistance in defining policy related to health and environmental effects of depleted uranium (DU) and the demilitarization programs. I am pleased to report that the Army's work with DU is close to being completed. A comprehensive report will be delivered by the end of March 1996. As a result of this report, several additional studies were initiated with the Georgia Institute of Technology, University of New Mexico, University of Alaska, and the Pacific Northwest Labs. The results of these studies are expected early in FY 1997. AEPI is working closely with the Program Manager for Chemical Demilitarization, to examine current program environmental policies and operations. AEPI has already identified a management and decision support system to streamline environmental planning, communication and policy decision making. AEPI is opening new initiatives on the application of disciplined risk management techniques to environmental issues and programs to ensure desired results at reasonable cost.

POLLUTION PREVENTION

The Army recognizes that prevention is the best long-term solution for reducing risks to human health and the environment from pollution. Our pollution prevention program focuses on eliminating pollution through substitution or elimination of processes and activities that generate pollution.

The public, private, and service sectors are equally embracing pollution prevention as the preferred strategy for environmental management. We can no longer rely solely on compliance-oriented environmental program management techniques. End-of-pipe treatment and control of waste and extensive restoration of contaminated sites are extremely expensive and passes risks to our workforce and communities.

The Army is changing its institutional behavior by integrating pollution prevention into our research, development, and acquisition process. Pollution prevention must be fully integrated into all facets of the acquisition process, ranging from the budget process to the review of proposals. The ultimate goal is to eliminate or reduce the use of hazardous materials within the system acquisition process for both new and existing systems.

Pollution prevention continues to have a positive impact on readiness by reducing operating costs and enhancing quality of life. Our environmental managers are teamed with logisticians, industrial plant managers, and military leaders to reduce the use of hazardous materials and the generation of hazardous wastes. This further extends to our individual soldiers, civilians, and family members who actively support installation recycling programs. We are closely examining existing acquisition policy to discover new ways to minimize pollutant generation and resulting correction costs through the entire system life cycles.

The Army is seeing measurable signs of progress in pollution prevention. At the 1995 Army Earth Day award ceremony, the Texas Army National Guard was recognized for its achievement in meeting its environmental challenges. The Texas Army National Guard was cited for reducing its waste generation by 50 percent from 1991 to 1994. Their efforts are now focused on further reducing waste generation by 80 percent, by 1999.

During the period from FY 1990 to 1995, Army installations achieved considerable success at recycling solid and hazardous wastes. The Army currently has 176 installations with recycling programs. Twenty-one of these installations participate with their local communities and 49 also have hazardous materials recycling programs. During this same time period, reporting Army installations recycled over 30,000,000 pounds of solid (paper, plastic, and metal) and hazardous materials/waste. Net recycling proceeds were over $15 million. Approximately $11.5 million of the recycling program profits were spent on local installation morale, welfare, and recreation activities, many of which support quality of life programs. Over $3.7 million of the recycling profits were spent on other environmental projects. The true value of recycling can be seen not only in net proceeds and waste reduction, but also in savings of more than an estimated $71 million in waste disposal fees. As recycling programs expand, the Army expects to generate even greater revenues and savings through increased cost avoidance.

A local recycling program at Lake City Army Ammunition Plant (LCAAP), Missouri, won the prestigious White House Closing the Circle Award as one of the nations finest recycling centers. LCAAP generates solid waste ranging from common office items such as paper, cardboard, and plastic to complex byproducts of the ammunition trade: propellant powder, scrap ammunition cartridges and cans, lubricating oils and mercury. Starting in 1993 as a paper recycling program, LCAAP recycled 60 percent of its solid waste in the first year. Total recycling jumped to 85 percent in 1994.

We will never be content with our success to date and cannot afford to lose our momentum. The Army is moving forward with fielding of the Hazardous Substance Management System (HSMS), the DOD-selected hazardous substance tracking, reporting, and management software. After field testing at an initial five installations, HSMS will be fully fielded from FY 1997 through FY 1999 to the balance of the active component and a portion of the reserve component. HSMS encourages the central management of hazardous materials at the installation. Under centralized management of hazardous materials, Army environmental managers are partnering with logisticians to create an installation program with

the goal to reduce the use of hazardous material through strict inventory control. Small supply activities no longer procure and store hazardous materials. Installations develop an authorized users list of the numerous hazardous materials and then centrally manage the hazardous material inventory and disposal or reuse of the hazardous material. Cost savings and cost avoidances come from both reduced hazardous material purchases and a reduction in the amount of hazardous waste disposed.

Solid waste will be significantly reduced by new or modified technology. Our research and development programs are refocusing toward this end. I expect positive results from these initiatives in the mid-term. Until then, significant efforts are underway to educate and train the entire work force in the pollution prevention ethic. These individual contributions are expected to significantly accelerate our current programs.

Our pollution prevention budget request of $98.1 million for FY 1997 will continue our momentum toward our goal of minimizing the use of hazardous materials and the production of hazardous wastes. The Army views pollution prevention as best management practice that results in reduced life cycle costs, reduced liability, improved public image. and enhanced environmental stewardship.

CONSERVATION

Army installations that now serve as home to more than one million soldiers and their families are also the home to some 131 endangered species of plants and animals. On these same installations there are more than 35,000 known cultural resource properties that include historic buildings and significant archeological sites.

The overarching goal of the Army's conservation program is to support readiness by maximizing availability of land and sustaining the environment for field training and testing. Many Army training areas are becoming islands of natural habitat in a sea of residential and commercial development. Our commanders recognize their responsibility to protect these lands as they become increasingly scarce and valuable. The Army puts significant emphasis on protecting and maintaining our installations and training lands, and relies on scientific protocols to guide us in our land use and investment decisions. Commanders realize that conservation activities directly support Army training and readiness. The Army's modest investment in conservation programs helps support OPTEMPO through natural resource management of lands used for training.

Within the Army, natural resource managers are partnering with trainers to maintain key land-based resources to sustain realistic training on Army lands. Integrated Training Area Management (ITAM) is one of the Army's most valuable conservation programs. The Army leadership made the decision to transfer responsibility for our ITAM program from the Environmental Staff to the Operations/Training Staff in the Office of the Deputy Chief of Staff for Operation and Plans. ITAM is now formally linked to our training and operations community. Our intent was to place responsibility for land management with those responsible for training on those lands. As the Army moves forward with the program, our trainers are doing some innovative things with what was already a valuable program. Three actions are particularly noteworthy.

First, we are reviewing the protocol that is used to survey and monitor natural resource conditions and trends on our training lands. The traditional Land Condition Trend Analysis (LCTA) protocol is being revisited with the objective of making it more effective in detecting

the impacts of training and adopting current technology to the process of collecting condition data and making the process more applicable to, and supportive of, the needs of installation level land managers.

Second, we use division training plans to measure our land use requirement. In doing so, we are better able to measure the capacity of our lands in terms of how we actually conduct training. Training models reflecting events, type of units, and tactical equipment impacts, in the context of how the Army trains, will significantly improve how we measure our land's capability to sustain our training.

Finally, ITAM helps drive our investment requirement for land maintenance and rehabilitation. By developing and introducing factors based on division training strategies, recognizing the ecological settings of our various installations where those strategies are executed, we will be able to tailor our investment in direct relationship to the extent and type of training conducted at each installation.

Our goal is to establish ITAM Army-wide. We are excited about the direction our trainers are going with ITAM and believe they are improving on a program that is essential to the good health of one of the Army's most critical assets - its training lands.

The Army has a major challenge -- accomplishment of a very intensive and serious ground forces training mission, while meeting Federal stewardship objectives to sustain ecological resources and comply with the law. This challenge can be met by our installations through the preparation and execution of integrated natural resources management plans (INRMP). ITAM is becoming the integrator of land uses on training areas and is the primary implementation vehicle for INRMP.

The Army developed and issued an Endangered Species Management Strategy and Action Plan which institutionalizes our management process for resolving Army-wide endangered species issues. This plan includes policies for complying with the Endangered Species Act. This guidance will help improve the decision making process used by our installation commanders in their management of threatened and endangered species in conflict with military operations. Positive cooperation between the Army and the US Fish and Wildlife Service provides the framework to resolve conflicts between military training readiness and the conservation of endangered species on Army installations. Our most current effort is a joint revision of the Army's red-cockaded woodpecker management guidelines affecting nine installations in the southeastern United States.

The Army is working to preserve and protect historic structures and archaeological sites in accordance with the National Historic Preservation Act and other cultural resource laws. We have a program to meet the requirements of the Native American Graves Protection and Repatriation Act and have completed 79 installation compliance reports.

The Army continues to execute interagency agreements with other Federal and state agencies designed to improve coordination concerning the management of sensitive natural and cultural resources on our installations. During FY 1995, the Army, in conjunction with DOD and the other Services, established an interagency agreement with the National Biological Service. This agreement, coupled with other earlier agreements, optimizes use of limited resources and improves relationships with land mangers and regulators. Also, we are currently working on an interagency agreement with the Advisory Council on Historical Preservation to facilitate the consultation process for Army properties.

The FY 1997 budget request of $32.2 million for conservation programs will preserve the quality of land resources, and comply with regulatory requirements to protect endangered species and other natural and cultural resources. Protection of these resources is vital for soldier's continued access to quality ranges and realistic training, as well as the sustainability of the Nation's resources.

COMPLIANCE

Our compliance program focuses on activities designed to ensure that current operations at installations and activities meet Federal, state, and local environmental requirements, as well as the applicable Final Governing Standards (FGS) overseas. These requirements include statutes, case law, Executive Orders, regulations, policies, and directives from more than 50 major Federal environmental laws. Full and sustained compliance is very challenging. However, the greatest challenge will be to continue our compliance posture, and, at the same time, effectively transition to the prevention mode of operations.

The Army's "must fund" policy requires commanders to identify areas where standards are not being met, or where standards may not be met, and to align resources to ensure appropriate responses to achieve compliance. Specifically, policy requires that all EPA Class I (i.e., noncompliance) requirements, all Class II that will become Class I by the end of the fiscal year for which budget estimates are formulated, and hazardous waste disposal must be funded. This tough policy has improved our compliance posture by ensuring that legally-mandated requirements are funded, providing command emphasis, and increasing visibility of environmental requirements. Our funding policy sends a clear, strong positive message to the regulators that the Army is serious about meeting its environmental responsibilities and enhancing our overall public image.

The Environmental Compliance Assessment System (ECAS) remains the keystone of our compliance program. Army installations across the United States and overseas are using this standardized system to evaluate their compliance with numerous Federal, state, local, and applicable host nation environmental laws and regulations. ECAS helps installation commanders identify problems, select corrective actions, and program required resources. Army environmental staffs are finding that ECAS is a valuable tool for pinpointing problem areas and shaping a sound compliance program. The use of ECAS not only leads to better environmental stewardship but also improves unit readiness and installation quality of life by minimizing health threats, and reducing the amount of funds diverted to pay fines and penalties for noncompliance. I am a firm believer that the ECAS process provides the secondary benefit of increased environmental awareness to major Army commands (MACOMS) and installation staffs. Since implementation of the ECAS program in 1992, over 1,387 assessments have been conducted. This includes 148 active Army installations, 1,180 Army Reserve installations, and 59 Army National Guard installations. The active Army installations conduct an external assessment every three years (except for Army Materiel Command installations, which conduct external assessments on a four-year cycle). Beginning with the second round of assessments that began in FY 1995, the program is being further streamlined to improve the report preparation process, to better track the corrective actions, and to give MACOMS more oversight of the process. The FY 1997 budget request will continue to support a similar level of effort as that for previous years.

Despite our commitment to environmental excellence, the Army continues to experience degrees of noncompliance and challenges in environmental management. The majority of our enforcement actions (ENFs) are operational or administrative in nature. From FY 1992 through FY 1995, over 41 percent of the ENFs issued to Army installations were due to violations of the Resource Conservation and Recovery Act (RCRA). RCRA regulates management, transportation and disposal of solid and hazardous waste, and the management of underground storage tanks. Eighty-five percent of the ENF findings issued under hazardous waste regulations required only an administrative or procedural correction versus a construction project. Army efforts to help installation commanders determine the size of the environmental staff they need, and also efforts to improve and expand technical training should help reduce these findings. During FY 1995, there were 241 ENFs, about a 21 percent decrease from FY 1994. While ENFs over the past few years remain relatively constant or declined slightly, the amounts of fines and penalties assessed has increased since the passing of the Federal Facility Compliance Act. Through March 1, 1996, a total of $10.6 million in fines and penalties has been assessed against the Army. The Army program performance reflects a 64 percent decrease in frequency from FY 1994 to FY 1995, while the average assessment decreased by more than 90 percent over the same period. This is particularly encouraging and is a positive indicator of the ECAS program's effectiveness, given that one of the primary objectives of the ECAS program is to reduce the number and amount of fines and penalties received.

The Army's air quality program goal is to control emissions to the atmosphere to protect human health and the environment. One of the most important tasks in implementing the Clean Air Act Amendments of 1990 (CAA) is to ensure that all Title V (Major Source) permit applications are submitted in accordance with prescribed regulatory guidelines. The Army's efforts to provide guidance and training for CAA implementation will greatly enhance the ability of installations to meet the regulatory deadlines.

The EPA's proposed Military Munitions Rule, published in November 1995, contains a proposal that the DOD draft its own Federal regulation for military ranges. The Army is the lead for DOD in developing a Range Rule to address the management of military munitions on closed, transferred or transferring ranges. The regulation will address safety, human health, and the environmental impacts on these ranges. As part of the rule-making process, citizens and interested groups will have opportunity to provide their comments and concerns.

The Army must, and will, comply with environmental laws passed by Congress and the implementing regulations created by Federal, state, and local regulatory agencies. The FY 1997 budget request of $595.8 million will correct existing deficiencies and make improvements to meet new and tougher standards.

RESTORATION (CLEANUP)

Our Defense Environmental Restoration Program (DERP) and BRAC programs continue to produce positive results. Using the "relative risk" approach to cleanup at Army installations, the Army has worked diligently to ensure that the health and safety of people living in the communities near our installations, as well as our installation personnel, are protected. In FY 1995, the Army obligated over 58 percent of the Defense Environmental Restoration Account (DERA) funds to actual site cleanup, indicating our continued trend of conducting more cleanup and less analysis and management.

Our program goal for FY 1997 is to spend an ambitious 65 percent on actual cleanup. We have identified 10,381 potentially contaminated sites to screen at 1,090 installations, with 6,861 sites requiring no action. Preliminary Assessments (PA) at all sites have been completed and 6,268 require no further action. Final remedial actions are complete at 427 sites and 733 interim remedial actions have been completed at 500 sites. Actions are planned or underway for 3,520 sites.

The Army is executing a $417 million environmental restoration program in FY 1996. The FY 1997 request includes $356.9 million for Army installations. The Army's cleanup program continues to show extremely positive results. Significant cleanup activities in FY 1995 included the signing of the first "natural attenuation" Record of Decision (ROD) for chlorinated hydrocarbons and explosives in groundwater at Sierra Army Depot in California. Natural attenuation involves a commitment to continue monitoring groundwater to determine if contamination levels increase and, if not, to permit contaminants to naturally degrade or disperse without physical treatment. This innovative technology could potentially avoid millions in unnecessary treatment costs if applied nationally. The Army has since provided guidance to evaluate the feasibility of natural attenuation at all sites undergoing remedy selection.

At Rocky Mountain Arsenal, our largest cleanup, the Army completed incineration of over 10 million gallons of highly contaminated fluid at Basin F. Over 120 tons of copper were recovered from Basin F wastes for beneficial reuse. In June 1995, we signed a Conceptual Remedy Agreement with other affected Federal agencies and the State of Colorado. The agreement concludes over two years of negotiations and stakeholder input. This agreement enabled the Army to move forward with formal remedy selections for both the off-post and on-post cleanups. The off-post ROD was signed in December 1995, and in January 1996, we reached an agreement on water negotiations with the South Adams County Water and Sanitation District to provide 4,000 acre-feet of water and water connections for individuals with well water that could become contaminated in excess of health standards. In the summer of 1996, we plan to complete the comprehensive on-post remedy selection.

In FY 1995, the EPA deleted Landfill Number 5, at Fort Lewis, Washington, from the National Priority List (NPL). This was the first Federal facility removed from the NPL. The Army studied the site for potential effects on the environment and built a cap and monitoring system for the landfill. After subsequent monitoring showed no further action was warranted on the site, EPA, Army, and the State of Washington Department of Ecology agreed no further action was necessary at the site.

The Army has 86 installations and 53 stand alone family housing areas identified under BRAC 88, BRAC 91, BRAC 93, and BRAC 95, that are scheduled for closure or realignment and property transfer under BRAC laws. Since implementation of the "Fast Track Cleanup" initiative of the President's Five-Part Community Revitalization Program, the Army has designated full-time BRAC Environmental Coordinators or FAST Track Cleanup Points of Contact for each installation where property is available to the community. Where applicable, we have established BRAC Cleanup Teams (BCTs) and developed BRAC Cleanup Plans to ensure cleanups are planned to support beneficial reuse, and to protect human health and the environment. For BRAC 95 installations, the Army has already established 19 BCTs with one other currently under development. We have been proactive in establishing Restoration Advisory Boards (RABs) to facilitate public involvement. For BRAC 95 installations, we are

well ahead of the 18-month requirement to complete environmental baseline surveys (EBSs) for clean parcel identification under the Community Environmental Response Facilitation Act (CERFA).

The Army has transferred approximately 41,473 acres. During FY 1995, the Army issued one major lease, six minor leases, and two leases of conveyance. The major lease was for all the land at Lexington-Bluegrass Army Depot. The minor leases were for buildings at various installations, and the leases in furtherance of conveyance were for the homeless assistance purposes at the former Fort Ord. We have completed the required cleanup at all stand alone housing areas and at 10 BRAC installations. Cleanup is underway at an additional 18 BRAC 88 installations. Cleanup is completed at five BRAC 91 installations, with the remaining BRAC installations in study and remedial phases. Currently, 51 installations (25 pre-BRAC 95) have excess property available for community reuse. Local Redevelopment Authorities (LRAs) have completed reuse plans at 15 pre-BRAC 95 installations; the remaining pre-BRAC 95 installations do not have a local redevelopment authority formed. LRAs are forming at most applicable BRAC 95 installations (17 have already been approved).

In the FY 1996 Military Construction Act, Congressional notification was required for funds to be transferred from construction activities into non-construction activities such as environmental cleanup. In effect, a ceiling was placed on environmental activities in support of BRAC environmental matters. We believe that environmental ceilings are not conducive to the flexibility required to fund cleanup at property that is available for community reuse. Such flexibility would help us respond to changing circumstances affecting each BRAC installation, such as local reuse plans, regulations issued by EPA and each state, and changes in requirements resulting from studies and investigations. As environmental studies and beneficial reuse plans evolve, cleanup requirements often change. We need flexibility to respond by drawing on available BRAC resources without a ceiling on environmental spending.

The Army is executive agent for the DERA funded FUDS Program. Approximately 8,769 formerly used properties, with potential for inclusion in the program, have been identified. This is an increase of 453 new properties during FY 1995. Preliminary Assessments have been completed at 7,502 properties, of which 5,166 properties have been determined to require no further action. Of the 2,336 properties determined to require action, 368 are completed. Actions are underway or planned for the remaining properties. Funding in FY 1995 for the FUDS program was $259 million.

Major highlights of the FUDS FY 1995-1996 program include: (1) completed of a 5-year cleanup program in only 20 months at Raritan Arsenal, New Jersey, by excavating approximately 17,500 cubic yards of contaminated soil and debris and replacing the baseball field for Middlesex County College; (2) completed soil washing to remove 14,530 tons of heavy metals contamination in one construction season and 1,750 tons of drums, utilizing local labor in support of beneficial reuse at Gustavus Airport in Alaska; (3) rapidly responded to safely and quickly remove 268 glass vials of buried chemical agents at the Mississippi State Fairgrounds in Jackson, Mississippi; (4) removed 6,969 tons of debris and over 53,000 drums from 14 sites in Nome, Alaska, using local labor, resulting in significant savings in training, travel, and per diem costs; (5) reduced NPL boundaries by 67.5 percent from 8,323 acres to 2,704 acres and expedited the regulatory review and approval process at West Virginia Ordnance Works.

Limited funds hampered FY 1996 efforts to meet the goal of completion of PAs at all FUDS properties. The FY 1997 budget request of $223 million will be sufficient to complete the PAs and embark on a goal of completing all necessary site inspection work at FUDS properties by FY 1999. It is estimated that FUDS will require approximately $20 million in each fiscal year through FY 1999 to complete the site inspection work to provide the necessary data to complete the relative risk assessment for each property that remains under evaluation for possible remedial action.

The Army is DOD lead agent for the Defense-State Memoranda of Agreement (DSMOA) program. In this program, begun in 1990, DOD provides funding to states and territorial regulatory agencies to hire personnel and provide support to the DOD environmental cleanup programs at FUDS, non-closing, and closing installations. These agreements have been reached with 48 states and territories, with funding provided to 45 of these states. The DSMOA is considered one of the most successful partnering efforts in DOD. Cooperative efforts with states and territories save both time and money by reducing review times, ensuring availability of state and territorial personnel to review DOD cleanup documents and attend meetings, expediting the priority setting and decision making process, and facilitating improved community relations. Together with the states and territories, it has been estimated that the DSMOA has avoided over $2 billion in environmental cleanup costs and reduced cleanup times at an investment of approximately $140 million.

Some examples of DSMOA's successful FY 1995-1996 program include: (1) support of the DSMOA by the Maryland Department of Environment led to the acceptance of innovative technology at the Edgewood Area of Aberdeen Proving Ground, allowing the use of a permeable infiltration unit at a cost of $8.5 million negating the need for removal estimated at $1 billion (2) Longhorn Army Ammunition Plant (LHAAP), Texas, received help from the DSMOA to identify a cost efficient means of management oversight for LHAAP thereby saving over $7 million. A stable, steady funding level must be maintained to continue this strong partnership.

We have aggressively pursued public participation in all our cleanup programs. At this time, we have established RABs or Technology Review Committees at 35 Army installations, 18 BRAC installations and 17 FUDS properties. Additionally, we are planning to establish or are evaluating public interest for RAB establishment at six Army installations, seven BRAC installations, and at eight FUDS properties. Further, in FY 1995, the Army participated in seven DOD sponsored national training workshops to communicate RAB policy and guidance. Attendees included representatives from DOD organizations, EPA, state regulatory agencies, community organizations and interested citizens. Although the need exists to continue this training, no public participation training is scheduled in FY 1996 due to budgetary constraints.

The Army supports the DOD proposal to devolve the DERA to the Services in FY 1997. We believe that devolvement will enable the Army to more quickly obtain and obligate DERA funding. We have mechanisms in place to ensure responsible programmatic and fiscal control of DERA funding. We have implemented the DOD relative risk concept to ensure that priority for available funding is provided to the sites that represent the most severe environmental or human health hazard.

Because environmental cleanups typically entail a sustained commitment over several years to accomplish, it is important that a stable program funding level be maintained to avoid unnecessary and uneconomical stops, starts, and delays in project accomplishment. For this

reason, we recommend that DERA remain a restricted account even if the program is devolved to the Services. This will ensure the continuation of a sustained and stable funding source to address our cleanup commitments and obligations without having to compete directly for funding with other mission requirements in the year of program execution.

We recommend against Congressional establishment of arbitrary goals for remedial actions. We believe that the Army has made steady progress in moving from a program heavily weighted toward analysis and investigations to a program heavily weighed toward actual cleanup. For FY 1997, the Army has an ambitious 65 percent goal for remedial action. This continues a clear trend of more cleanup than analysis since FY 1994, and our projections indicate a continued percentage increase in remedial actions over the next few years. Nevertheless, we must retain flexibility to fund the necessary analysis and investigations that will enable us to determine and select the most cost-effective remedies at our contaminated sites.

In addition to a large inventory of sites that still requires completion of site contamination characterization, we have determined that prudent investment in site analysis can yield significant cost avoidance in remedial action costs. For example, at Tobyhanna Army Depot in Pennsylvania, the Army is near agreement with the state and EPA on adoption of a "natural attenuation" remedy. After removal of the source of 1,1,1 trichloroethane contamination, the Army was able to demonstrate that the contaminant concentrations were actually declining in the groundwater. The state and EPA had originally required the installation of an expensive pump and treat system. By investment in groundwater sampling and modeling to justify selection of the natural attenuation remedy, we estimate that the Army may avoid as much as $5 million over the pump and treat remedy.

We strongly encourage Congressional funding of our budget requests for our FY 1997 environmental cleanup programs. Reduction of funding results in fewer and slower cleanups. Although the Army will take action to address all immediate threats to human health and the environment, reduced funding stretches out the life of the cleanup program and increases total cost. That often means that contaminants will remain longer as potential hazards to drinking water supplies, and beneficial reuses of land will likely be delayed. The Army needs strong Congressional support for our FY 1997 budget request.

ENVIRONMENTAL TECHNOLOGY

The Army's environmental technology program is an important foundation element tightly woven into the four environmental pillars, or mission areas. The environmental technology program policy is to support the Army's Environmental Strategy by providing exceptional products in a timely manner through partnerships with users and the technology community. Our goal is quite simple -- use environmental technology to reduce the cost of the environmental program, making more funds available for readiness, quality of life initiatives, and modernization.

The Army is moving forward to provide an appropriate mix of near, mid, and far term innovative environmental technologies for solving unique environmental requirements. Our user requirements process ensures a user-driven technology program. With this focus, the technology community concentrates its efforts on high priority environmental thrust areas defined by the users.

Our environmental technology strategy is to identify and document validated user requirements; build strategic plans listing all research and implementation efforts required to satisfy the user requirements; develop, program, and fund the required projects outlined in the strategic plan; and work with technology implementors in demonstration/validation and field implementation of new technologies.

The Army continues to test promising technologies for detecting and removing unexploded ordnance from ranges and proving grounds. A demonstration project at Jefferson Proving Ground, Indiana, is helping the Army find better technologies for tackling this cleanup challenge. The selection of natural attenuation at Sierra Army Depot, California, avoided a potential cost of $2.5 million over more traditional pump and treat systems. Use of phytoremidation to biologically neutralize explosives residuals in Milan Army Ammunition Plant, Tennessee, could potentially avoid approximately $1 million over standard pump and treat technology.

The Army budget request is $27.4 million in FY 1997 for our environmental technology program to develop smart technologies to reduce costs and prevent future liabilities.

CONCLUSION

We need to be successful in all aspects of our environmental stewardship. Few Army programs implemented over the last few years have been more closely scrutinized and received more command attention than the environmental program. From its relatively meager beginnings, today's program is firmly established on a solid foundation of people, funding, management and organization, communications, and shared values. Our FY 1997 program provides the necessary tools for us to maintain our programs.

I will close by praising the many soldiers and civilians directly involved in the Army's environmental program. They are dedicated and strive to do the best job possible under some formidable conditions. Above all, we must remember that people make our programs a success.

As the Army approaches the 21st century, the Army's commitment to protecting the environment will not diminish. The environmental goal of America's Army is clear. The mission is understood. The environmental ethic is ingrained into everything we do. Environmental stewardship, both here and overseas, is our responsibility, our legacy, and our future.

FISCAL YEAR 1997 AIR FORCE MODERNIZATION AUTHORIZATION REQUEST

HOUSE OF REPRESENTATIVES, COMMITTEE ON NATIONAL SECURITY, MILITARY PROCUREMENT SUBCOMMITTEE, JOINT WITH MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE, *Washington, DC, Friday, March 22, 1996.*

The subcommittees met in joint session, pursuant to notice, at 10:10 a.m., in room 2118, Rayburn House Office Building, Hon. Duncan Hunter (chairman of the Subcommittee on Military Procurement) presiding.

OPENING STATEMENT OF THE HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE.

Mr. HUNTER. The subcommittees will come to order.

Today's hearing is the second in a series of service modernization hearings we will hold to examine the problems faced by the services as they struggle with the effects of the continuing administration trend of shrinking modernization accounts.

Although we have only limited information on the fiscal year 1997 defense budget, the committee is again faced with modernization budget requests that are not only lower than the fiscal year 1996 authorized levels, but also contradict the Pentagon's own forecasts of much-needed increases in the modernization accounts.

Adm. Bill Owens, recently retired vice chairman of the Joint Chiefs of Staff, described the problem perfectly when he outlined the downward spiral in defense procurement budgets. And some folks have been tired of listening to Admiral Owens' quote, but I am going to quote him again.

He said:

In 1993, the President's budget had for procurement $62 billion. It also prophesied that in 1994 procurement would be at $63 billion. Of course, what really happened was it went to $48 billion, but we all thought it was going to go up. And in 1995 it was going up to $55 billion, but in fact what really happened was $46 billion. But it promised it would go up. And in 1996, we are now down to $39 billion, and we are promising that it will go up. We have got to stop promising ourselves, and start doing something.

Already in this year's defense hearings, we have heard each of the service chiefs state that underfunded modernization programs are their most critical budget problems. To better understand the impact of the services' modernization problems, each of the chiefs has provided a list of their highest priorities for additional modernization funding.

Today we will hear from the Air Force on their modernization needs. Based on the limited budget information available, we see what appear to be disturbing indications of further declines in Air Force modernization. The fiscal year 1997 Air Force procurement budget of $14.5 billion is lower than the $16.9 billion authorized in fiscal year 1996. It is also substantially lower than the $17.9 billion forecast for fiscal year 1997 just 1 year ago.

This disappointing trend in administration budget requests continues to hamper much-needed modernization and future readiness of our military forces. General Fogleman stated during a recent full committee hearing that he supported the recommendation of the Chairman of the Joint Chiefs of Staff, General Shalikashvili, which called for increasing the Department of Defense procurement budget from its current low-water mark of $38.9 billion up to $60 billion by fiscal year 1998, rather than 2 or more years later.

And I think the chairman of the full committee characterized the predicted plus-up after the turn of the century accurately when he said:

> What you are really saying is this President is willing to leave a will to some President in the future that requests him to increase the defense budget.

Because it is not really this Administration's budget or their position or their authority to say that we are going to increase defense spending in the modernization account some time after the turn of the century, because nobody knows who that President is going to be, nobody knows who the Secretary of Defense is going to be, and nobody knows that they are going to be any politically stronger than this President.

Now, we understand that a list of unfunded fiscal year 1997 modernization priorities provided by the Air Force just last week specifically addresses a portion of those recommended increases in procurement levels. And we would like to discuss these and other modernization issues during today's hearing.

Joining us this morning are the Honorable Arthur L. Money, Assistant Secretary of the Air Force for Acquisition, and his military deputy, Lt. Gen. George K. Muellner.

Is it "Millner" or "Mullner"?

General MUELLNER. "Mullner," sir.

Mr. HUNTER. "Mullner." Excuse me, General.

Mr. Secretary, we welcome you, and thank you for being here. And my colleague, the chairman of the Research and Development Subcommittee, Mr. Weldon, has an important matter that he is attending to right now. He will be here shortly, and when he arrives I will ask him if he wishes to make some remarks for the record.

Also, Mr. Skelton and Mr. Spratt will be here in short order, and we will give them also the opportunity to make an opening comment.

So Mr. Secretary, without objection, your prepared statement is going to be entered into the record. We welcome you to the committee today, and the floor is yours.

STATEMENT OF ARTHUR L. MONEY, ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION

Mr. MONEY. Thank you. Mr. Chairman, members of the subcommittee, and staff, General Muellner and I are very pleased to

have this opportunity to present the Air Force's research, development, test, and evaluation, and procurement program proposed in the fiscal year 1997 President's budget.

I will make some brief opening remarks, and then will discuss specific programs in the fiscal year 1997 President's budget that are critical to the Air Force's vision of global reach and global power.

This budget balances investment across the entire range of air and space capabilities, while sustaining a technology base. Aggressive acquisition reform initiatives are encompassed in all there is of this program. Our reform successes clearly demonstrate that we have delivered improved capabilities, and we will be delivering improved capabilities, to the joint war fighters, faster, better, and cheaper.

Today we will discuss some of the Air Force's key modernization efforts supporting global mobility, air superiority, precision employment, space superiority, and information dominance. To modernize our forces, we have prepared a prioritized time-phase plan that is balanced across the near-term, mid-term, as well as the long-term needs for fiscal year 1997 and beyond.

The President's budget strikes a carefully time-phased balance between modernization and readiness. As fiscal constraints become even more demanding, funding stability is absolutely essential. Attempts to achieve short-term savings by delaying or slowing down modernization programs greatly increase program costs. To maintain our balance between readiness and modernization, we all must work together to maintain stable funding. The result will be the most efficient use of the Nation's investment resources.

As part of our presentation to you, we will highlight critical programs, like the C–17, F–22, Joint Strike Fighter, Global Positioning System (GPS), Spaced Based Infra-Red System (SBIRS), Airborne Warning and Control System (AWACS), and Joint Surveillance Target Attack Radar System (JSTARS). These programs demonstrate that we are delivering improved capabilities to the war fighter today, while developing the capabilities needed to maintain our superior space and air capabilities well into the 21st century.

These programs are just examples of the progress we have been making in modernizing our forces. And many of these programs are the leading edge of acquisition reform, and are laying the foundation for more far-reaching reform initiatives.

Our acquisition reform initiatives have taken hold and are becoming business as usual within the Air Force. I do not want you to hear, though, that it is a done deal. We are changing an old culture through training, through successes, and through leadership commitment.

Teamwork between Congress, Office of the Secretary of Defense (OSD), the services, and industry prove every day that we can deliver new and improved war fighting capabilities—again, better, faster, and cheaper. To date, these reform initiatives have generated approximately $13 billion in real savings, as well as cost avoidance.

We are building on these initial successes. We have extended reform from the laboratory through the product centers, into our lo-

gistic centers. Our successes are being measured in reduced cycle time, lower costs; all of this with a smaller acquisition workforce.

Finally, I want to briefly discuss the long-range planning, as well as the science and technology budgets, both of which are vital to not only the current but also the future modernization efforts. Developing the right technologies to satisfy the next generation of war fighters' needs clearly depends upon long-range planning.

The Air Force's science and technology community has active and well-established links to our war fighters as we apply a strategy-to-task, task-to-need, and need-to-technology approach to planning; this approach, through the Air Force mission area plans and through the technology planning.

In addition, we have recently released a new world vista. All of the members here and their staff people have gotten copies of this. This study provides a valuable input—not a simple input, but a valuable input—into our technology investment strategy.

In summary, Mr. Chairman, the Air Force is satisfying the global reach-global power needs, again, better, faster, cheaper. By building on these successes and teamwork with you and partners in Department of Defense and industry, we will continue to provide the war fighters and the American people with superior, affordable weapon systems.

What I would like to do now is, with General Muellner, we want to go through some charts we have and address some of the anticipated questions that you may have. Thank you.

[The prepared statement of Mr. Money and General Muellner follow:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE

HOUSE NATIONAL SECURITY COMMITTEE

SUBCOMMITTEE ON MILITARY PROCUREMENT

AND

SUBCOMMITTEE ON MILITARY RESEARCH AND DEVELOPMENT

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 1997 Air Force Research and Development

STATEMENT OF: MR. ARTHUR L. MONEY
Assistant Secretary of the Air Force
For Acquisition

LIEUTENANT GENERAL GEORGE K. MUELLNER
Principal Deputy Assistant Secretary of the Air Force
For Acquisition

MARCH 1996

NOT FOR PUBLICATION UNTIL RELEASED
BY THE HOUSE NATIONAL SECURITY COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

BIOGRAPHY

UNITED STATES AIR FORCE

Secretary of the Air Force
Office of Public Affairs
Washington, D.C. 20330-1690

ARTHUR L. MONEY



Arthur L. Money is assistant secretary of the Air Force for acquisition, Washington, D.C. He is responsible for Air Force research, development and acquisition activities, and serves as the Air Force acquisition executive.

Mr. Money has more than 33 years of management and engineering experience with the defense electronics and intelligence industry in the design and development of intelligence collection analysis capabilities and airborne tactical reconnaisance systems.

He was president of ESL Inc., a subsidiary of TRW, before it was consolidated with TRW's Avionics and Surveillance Group, and vice president and deputy general manager for the TRW Avionics and Surveillance Group, with headquarters in San Diego. The group is internationally recognized for airborne electronic systems and technologies, including reconnaisance and intelligence systems and advanced integrated avionics.

Mr. Money and his wife, Sharon, have two children.

EDUCATION

1965 Bachelor of science degree in mechanical engineering, San Jose State University
1970 Master of science degree in mechanical engineering, University of Santa Clara
1985 Harvard Executive Security Program
1988 Program for Senior Executives, Massachusetts Institute of Technology

CAREER CHRONOLOGY

1. February 1962 - February 1972, engineer, Lockheed Missiles and Space Co., Sunnyvale, Calif.
2. February 1972 - January 1980, engineer, manager and director of various units, ESL Inc., a subsidiary of TRW, Sunnyvale, Calif.
3. January 1980 - June 1986, vice president, studies and analysis division, ESL Inc., Sunnyvale, Calif.
4. June 1986 - December 1988, vice president, studies, analysis and systems division, ESL Inc., Sunnyvale, Calif.
5. December 1988 - December 1989, vice president, advanced programs and development, ESL Inc., Sunnyvale, Calif.
6. January 1990 - December 1994, president, ESL Inc., Sunnyvale, Calif.
7. January 1995 - December 1995, vice president and deputy general manager, TRW Avionics and Surveillance Group, Sunnyvale, Calif.
8. January 1996 - present, assistant secretary of the Air Force for acquisition, Washington, D.C.

AWARDS AND HONORS

Engineering Award of Distinction, San Jose State University
Association of Old Crows Executive Management Medal

PREVIOUS PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

Member, Air Force Association
Member, Association of Old Crows
Chairperson, Santa Clara Valley Manufacturing Group
Chairperson, Defense and Space Consortium
Past chairperson, United Way of Santa Clara County
Board member, Valley Medical Center Foundation
Board member, American Leadership Forum
Board member, Valley Art Fund
Board member, San Jose State University's School of Engineering

(Current as of February 1996)

BIOGRAPHY

UNITED STATES AIR FORCE

Secretary of the Air Force
Office of Public Affairs
Washington, D.C. 20330-1690

LIEUTENANT GENERAL GEORGE K. MUELLNER



Lieutenant General George K. Muellner is principal deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C. He serves the Air Force acquisition executive in carrying out the management responsibilities for the Air Force acquisition system to include direction, guidance and supervision over all matters pertaining to the formulation, review, approval and execution of plans, policies and programs relative to acquisition.

The general entered the Air Force through the Reserve Officer Training Corps program at the University of Illinois. Most of his career was spent as a fighter pilot, fighter weapons instructor and test pilot with more than 5,300 hours in F-4, A-7, F-15 and F-16 aircraft. He completed 690 combat missions in Vietnam flying the F-4, and during Operation Desert Storm he commanded the Joint Stars deployment, logging another 50 combat sorties. He has commanded a classified test squadron, the Joint Stars Squadron and a tactical fighter wing.

As director of requirements at Air Combat Command, he orchestrated the operational requirements for all of the combat air forces and then became the mission area director for tactical, command, control and communications (C^3), and weapons programs for the assistant secretary of the Air Force, acquisition. As the program executive officer for the Joint Advanced Strike Technology Program, he created this joint service development activity.

General Muellner is married to the former Vicki Ann Edwards of Lancaster, Calif.

EDUCATION:

1967 Bachelor of science degree in aeronautical and astronautical engineering, University of Illinois
1974 Master of science degree in aeronautical systems management, University of Southern California
1978 Naval War College, by correspondence
1979 Master's degree in electrical engineering, California State University
1983 Master's degree in business administration, Auburn University
1983 Air War College, Maxwell Air Force Base, Ala.
1991 Defense Systems Management College, Fort Belvoir, Va.

ASSIGNMENTS:

1. October 1968 - May 1970, F-4 pilot, 12th Tactical Fighter Wing, Cam Ranh Bay Air Base, South Vietnam and the 479th Tactical Fighter Wing, George Air Force Base, Calif.
2. June 1970 - July 1971, wing weapons officer, 8th Tactical Fighter Wing, Ubon Royal Thai Air Base, Thailand
3. July 1971 - May 1973, F-4F weapons instructor pilot, German Fighter Weapons School, George Air Force Base, Calif.
4. May 1973 - July 1982, F-15 operational test pilot, 4486th Test Squadron, Edwards Air Force Base, Calif. Also served as chief of systems testing, USAF Test Pilot School; test pilot with the F-16 Combined Test Force; and operations officer and commander, 6513th Test Squadron, testing classified aircraft
5. July 1982 - June 1983, Air War College, Maxwell Air Force Base, Ala.
6. June 1983 - September 1983, weapons and tactics chief, Headquarters U.S. Air Forces in Europe, Ramstein Air Base, West Germany

7. September 1983 - September 1984, director of operations and training, Headquarters U.S. Air Forces in Europe, Ramstein Air Base, West Germany
8. September 1984 - May 1985, director of standardization and evaluation, flying the F-16, Headquarters U.S. Air Forces in Europe, Ramstein Air Base, West Germany
9. May 1985 - June 1987, deputy commander for operations, 36th Tactical Fighter Wing, Bitburg Air Base, West Germany
10. June 1987 - May 1988, vice commander, 57th Fighter Weapons Wing, Nellis Air Force Base, Nev.
11. May 1988 - September 1989, commander, 35th Tactical Fighter Wing, George Air Force Base, Calif.
12. September 1989 - December 1990, assistant deputy chief of staff for requirements, Headquarters Tactical Air Command, Langley Air Force Base, Va.
13. December 1990 - April 1991, formed the 4411th Joint STARS Squadron and employed the Joint Surveillance Targeting and Attack Radar System aircraft in support of Operation Desert Storm
14. April 1991 - June 1992, deputy chief of staff for requirements, Headquarters Tactical Air Command, Langley Air Force Base, Va.
15. June 1992 - September 1993, deputy chief of staff for requirements, Headquarters Air Combat Command, Langley Air Force Base, Va.
16. September 1993 - December 1993, mission area director, tactical, command, control and communications (C^3), and weapons programs for the assistant secretary of the Air Force, acquisition, Washington, D.C.
17. December 1993 - August 1995, director and program executive officer, Joint Advanced Strike Technology Program, Washington, D.C.
18. August 1995 - present, principal deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.

FLIGHT INFORMATION:

Rating: Command pilot, parachutist, missile officer
Flight hours: More than 5,300 fighter hours
Aircraft flown: F-4, F-15, A-7, F-16, and 117 others

MAJOR AWARDS AND DECORATIONS:

Defense Distinguished Service Medal
Legion of Merit
Distinguished Flying Cross with three oak leaf clusters
Purple Heart
Meritorious Service Medal with three oak leaf clusters
Air Medal with 27 oak leaf clusters
Air Force Commendation Medal with three oak leaf clusters

PUBLISHED ARTICLES:

"Air Superiority with the Eagle", Tactics Analysis Bulletin, August 1975; *"Developmental Testing Advanced Avionics Systems"*, USAF TPS Test, November 1977; *"Closed Loop Flying Qualities Evaluations,"* AFFTC Manual, March 1978 and *"Flight Test in Combat,"* Cockpit, September 1991

OTHER ACHIEVEMENTS:

1991 Aviation Week Laureate, Jimmy Doolittle Fellow, Aerospace Education of the Air Force Association, Distinguished Service Award of Association of Old Crows and 1994 Aviation Week Laureate

EFFECTIVE DATES OF PROMOTION:

Second Lieutenant	Mar 8, 1967	Lieutenant Colonel	Oct 1, 1980
First Lieutenant	Sep 19, 1968	Colonel	Nov 1, 1984
Captain	Mar 19, 1970	Brigadier General	Oct 1, 1991
Major	Sep 1, 1978	Major General	Sep 28, 1994
		Lieutenant General	Aug 1, 1995

(Current as of February 1996)

Mr. Chairman and Members of the Committee:

Thank you for this opportunity to appear before you and discuss the Air Force's Research, Development, Test and Evaluation (RDT&E) and procurement activities as proposed in the President's FY97 budget request. This budget request represents balanced investments across the entire range of combat and support capabilities while sustaining the technology base. It is a time-phased approach coupled with aggressive acquisition reform initiatives that ensures the Air Force will continue to provide our nation *Global Reach-Global Power* at an affordable price.

Air power will remain a major tenet of current and future U.S. national security policy. To that end, we are dedicated to providing America the most capable and efficient air and space forces possible--today and in the future. As a direct result, our forces give dominant warfighting capabilities to the U.S. Commanders-in Chief (CINCs). Specifically, the Air Force provides the joint force commander with a broad range of air and space capabilities, to include: *Global Mobility, Air Superiority, Precision Employment, Space Superiority, and Information Dominance.*

Global Reach-Global Power focuses the Air Force on core air and space contributions to the National Military Strategy, helping us prioritize modernization investments. The Air Force has carefully constructed a time-phased modernization plan that synchronizes the size and timing of multiple programs. This is the Air Force acquisition strategy and covers near-term, mid-term, and long-term efforts. This approach allows us to modernize without sacrificing readiness. Attempts to achieve short-term savings by delaying or

slowing down modernization programs will lead to disproportionately large expenditures over the long-term. In addition, these "delays" also generate "costs" associated with the required actions of extending the service life and enhancing the capabilities of fielded systems while waiting for the "delayed programs" to get fielded. Whenever a program is used as a "source" for funding, there are direct cost and readiness impacts to the related family of weapons systems and the Service's ability to meet national security objectives. In addition, non-programmatic reductions undermine program stability necessary to control costs and maintain affordability. For this reason, funding stability is critical, permitting us to make the most efficient use of the nation's investment resources.

GLOBAL MOBILITY

Our CINCs identify strategic lift, air and sea, as DoD's greatest single deficiency. In response to this need, the **C-17** is the Air Force's foremost **near-term modernization priority** and is a crucial piece of our Airlift Roadmap.

Our C-141s are rapidly aging, while the demand for airlift has increased. Based on a comprehensive analysis of strategic and tactical airlift requirements, aircraft and contractor performance, and cost effectiveness, the Defense Acquisition Board recommended that we procure 120 C-17s. In anticipation of Congressional approval, our plan takes advantage of a stable multi-year procurement contracting environment at high production rates to offer substantial savings $896M for C-17 acquisition. It allows us to fill the airlift gap faster and finish the 120 airframe C-17 procurement prior to the rise in production for the F-22. The *DoD* wholeheartedly embraces the C-17 multi-year program.

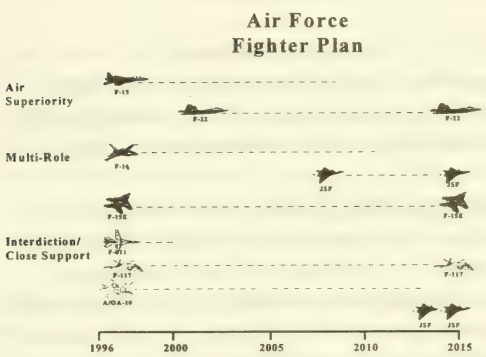
The C-17 has been flying operational missions since October 1994, supporting operations in Southwest Asia, Panama, the Virgin Islands, and now in Bosnia. Concurrently, our acquisition program has exceeded expectations with the last 12 aircraft delivered to the Air Force ahead of schedule. The success of last year's 30-day Reliability, Maintainability, and Availability Evaluation and support of operational missions is solid proof of the aircraft's performance.

AIR SUPERIORITY

The F-22 is our most important **long-term modernization priority**--the need for air superiority is unquestioned. The F-22 will guarantee air superiority well into the next century. Its airframe and powerplant provide a highly maneuverable stealth platform capable of extended supersonic flight. Revolutionary integrated avionics--on and off-board multi-sensor collection and data-fusion--will provide F-22 pilots unequaled battlespace awareness. The unique capabilities of the F-22 will enable the Air Force to dominate aerial environments--operating at will over hostile or contested territories, attaining unprecedented first-look, first-shot, first-kill successes, while protecting the many high-value assets necessary for success in modern military operations. This capability provides us the freedom of action to deploy our forces and dominate the battlefield.

We have sized and sequenced the F-22 program to meet critical warfighting requirements at a cost the nation can afford. When the F-22 enters the fleet, it will replace the early 1970s vintage F-15 with quantum leaps in technology and combat effectiveness. Furthermore, the F-22 will be cheaper to operate, require fewer personnel to operate, and require less airlift to deploy abroad. We have

made a substantial long-term investment commitment to achieve these revolutionary improvements. Funding stability continues to be a major concern for the future of the F-22 program. Already, during the course of the program, funding reductions have increased program costs by 2.5 to 3 times over the amount of the funds removed.



The next century will bring advances in the numbers and varieties of threats. While the F-22 will be a potent offensive tool to counter these threats, the Airborne Laser (ABL) will provide a very potent defensive tool against Theater Ballistic Missiles (TBMs). Operation DESERT STORM demonstrated the potential of theater ballistic missiles to serve as an effective delivery means for Weapons of Mass Destruction (WMD). Our current approach to counter this threat integrates complementary capabilities from the different Services to create a multi-tiered defense consisting of attack operations, boost-phase interceptors, and terminal defenses. Recognizing ABL's prominent role in the Theater Missile

Defense architecture, we have programmed $700 million in the current Future Years Defense Program (FYDP). In addition, we will transition the technology demonstration to a major defense acquisition program. ABL will provide a boost-phase intercept capability to destroy ballistic missiles over an aggressor's territory. The prospect of WMD debris falling on an enemy's own forces or people may serve as a strong deterrent to WMD use.

PRECISION EMPLOYMENT

Development of the Joint Strike Fighter, upgrading our conventional bomber forces, and developing and fielding enhanced munitions capabilities are all key activities for modernizing the Air Force precision employment capabilities.

The Joint Strike Fighter (JSF) is one of the Air Force's critical long-term modernization efforts and has been constructed to leverage the technological developments of the F-22. The technological advances that make the F-22 revolutionary--in avionics, composites, engines, and signature reduction--are the foundation technologies for the JSF. The JSF program will result in a family of low-cost fighter aircraft capable of meeting the future multi-role fighter requirements of the Air Force, Navy, and the Marine Corps and will replace the F-16, F/A-18 and Harrier. The affordability and versatility of JSF may also provide the most attractive alternative to many of our allies and coalition partners as they seek to modernize their existing fleets of fighter aircraft. The JSF team has developed a basic framework for international participation and we have already entered into an agreement with the United Kingdom in which they will contribute $200 million to share in the development costs of the concept demonstration. JSF has the potential to become the world's standard multi-role fighter for the 21st century.

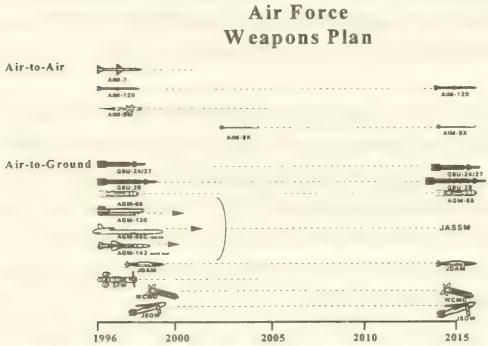
In the near-term, we must continue to sustain the health of our combat forces until the arrival of our next generation forces. To this end we are continuing to recapitalize our F-15E and F-16 fleets. We are also pursuing modest modernization upgrades to our fighter forces and purchasing enhanced conventional munitions, such as Joint Direct Attack Munition (JDAM) and sensor-fuzed weapons, to improve their effectiveness.

Conventional bomber upgrades and **smart munitions** improvements are Air Force **mid-term modernization priorities**. The B-2 will give America a credible capability to penetrate advanced defenses and conduct precision strikes--nuclear and conventional—anywhere in the world. The B-1 will transition to a conventional role and supplant the B-52 as the conventional backbone of our bomber fleet. The B-52 will continue to provide a nuclear hedge and offers long-range precision stand-off capability.

Bomber upgrade programs are helping us integrate our newest conventional weapons onto all bombers. These upgrades will give our non-stealthy B-52s and B-1s multiple target, stand-off, smart munitions strike capabilities as well as increase their survivability. The combination of completing development of our 20 B-2s plus upgrades to our B-1s and B-52s provides an affordable approach to maintaining the minimum overall long-range strike capability required to "swing" between two Major Regional Conflicts.

Critical to the effectiveness of our bombers and our fighters is the continued development and procurement of smart weapons. Stand-off, smart weapons extend the range, increase the lethality, and improve the survivability of older and newer aircraft alike. The Joint Stand-off Weapon (JSOW), Joint Air-to-

Surface Standoff Missile (JASSM), and JDAM provide a balanced and affordable approach for increasing the versatility and lethality of Air Force, Navy and Marine Corps aircraft.



JDAM will significantly improve our ability to conduct adverse-weather, round-the-clock operations. JDAM adds an Inertial Navigation System and GPS-guided nose and tail kit to the MK-84 general purpose and BLU-109 penetrator bombs and also to a 1000 pound bomb. Our recently announced award of JDAM EMD is a milestone in acquisition reform. Through a great competition, we were able to lower the average unit price of the mod kits by 55% from the Operational Requirement Document requirement and increase the warranty from five to twenty years. Using a carrot and stick approach—guaranteed business and a hands off government approach if the price holds—second sourcing and more traditional government oversight if the price rises—we can be confident that we will deliver on our promises. JSOW is a 1000 pound class accurate glide

dispenser weapon which provides us a low cost option for attacking Suppression of Enemy Air Defenses and soft targets from intermediate stand-off ranges.

Finally, JASSM is a precision long-range stand-off weapon designed to penetrate and attack targets in high threat areas. Our JASSM acquisition strategy is based on a number of streamlining initiatives – a streamlined source selection approach where contractor past performance will play a major role, industry involvement early and up front, and extensive use of integrated product teams. JASSM has also been designated a Cost As An Independent Variable flagship program which calls for continuous cost/performance trades throughout the program life cycle by striking a balance between capability and affordability. The program is on track to award two contracts this summer for a 24 month competitive rolling downselect Program Definition and Risk Reduction similar to JDAM. Based on this approach, we will focus on delivering an affordable, producible, and supportable missile design at or under the average unit procurement price of $700K. After downselect to one contractor, a 32 month Engineering Manufacturing Development will follow to test and evaluate the JASSM design. It will significantly increase our capability to hit critical, high value targets in the early stages of a conflict. In parallel with these weapons, we will develop and field reconnaissance platforms, sensors, and C4I infrastructure with the broad area coverage and geolocational targeting accuracy necessary to support precision guided weapons.

SPACE SUPERIORITY

Several modernization programs transcend our time-phased approach. For instance, Air Force modernization programs reflect the need to provide the

nation continuous, assured access to space. Our Launch and Satellite Roadmaps are key to providing the crucial access to space.

Evolved Expendable Launch Vehicle (EELV) will help us maintain this access to space. EELV is an evolutionary launch system. It is being designed to deploy a broad range of spacecraft and support increasingly demanding launch requirements. It is expected to lower the cost of both military and commercial access to space and ensure the long-term competitiveness of America's commercial launch industry. Currently we have four contractors performing Low Cost Concept Validation of their EELV systems. They offer diverse approaches to EELV and maximizing utilization of streamlined acquisition concepts. In November of this year we expect to select two of the four contractors to continue on the path toward our objective of acquiring the most affordable and effective system for our nation's future spacelift requirements.

Space Based Infrared System (SBIRS) is another key system that will improve the CINC's ability to defend against theater ballistic missiles. As a replacement for the Defense Support Program (DSP), SBIRS will enable U.S. and allied forces to detect targets, such as theater ballistic missiles, sooner and at lower altitudes, enabling allied forces to destroy them at longer ranges. As a result, the warfighter will possess an even greater ability to neutralize the theater ballistic missile threat. In addition, it will give theater level commanders increased opportunities to influence operations in real or near-real time. With SBIRS, space-based cueing will be available for direct downlink to a variety of offensive systems that can then destroy transport erector launchers immediately after launch detection. Space-based cueing will also be available for boost-phase

intercept platforms, such as ABL, to intercept missiles early in flight and to ground and sea-based terminal defense systems.

During the last eight months of SBIRS Pre- Engineering Manufacturing Development, the Air Force with Army, Navy, unified and theater commanders, as well as other agencies, (and contractor participation) reviewed the cost-driving requirements for SBIRS, performed cost/performance tradeoffs, and performed detailed military utility versus cost analyses of specific tactical parameters. Not only were individuals from these organizations involved on an almost daily basis, but there were periodic senior reviews to ensure that the process stayed on-track. By including cost of the system's driving requirements when setting detailed performance specifications, we have established a well balanced, affordable SBIRS requirement set. Additionally, praise from our contractor teams has been high because it allows them to understand the rational for requirements, and to suggest areas for significant savings with small changes in the requirements. The added stability from having a fully mature set of requirements prior to full scale development will be considerable. We believe this approach to cost as an independent variable will result in a significantly better acquisition system when applied to future systems development.

Advanced capabilities to track missile systems after booster burnout, through midcourse and reentry phases of flight are being developed in the low earth orbit component of SBIRS known as the Space and Missile Tracking System (SMTS) Flight Demonstration System (FDS). SMTS FDS is a proof of concept designed to demonstrate key technologies on orbit, crucial advances in the integration of complex, highly interactive subsystems into a single, low cost platform and

ground segment operations concepts for the command and control of a large distributed constellation of satellites.

SMTS FDS has some significant challenges ahead in the areas of long life, low orbit satellite design, and command and control of complex, distributed satellites. The ultimate goal is to field a highly capable and affordable system to revolutionize our warfighters' capabilities in missile warning, missile defense, technical intelligence and battlespace characterization.

Full scale deployment, in accordance with the Under Secretary of Defense (Acquisition and Technology) approved program baseline, was planned to begin in FY06 with a constellation of satellites on orbit by FY08. The Air Force, in coordination with the other services and DoD agencies, is developing a new strategy to accelerate that deployment in response to Congressional direction in the FY96 Defense Authorization Bill. The plan being prepared for high level DoD review meets the Congressional mandate to begin launching an operational low earth orbit system in FY02 and achieve initial operational capability by FY03. The next few years are crucial and adequate funding and program stability are a must to maintain momentum for this accelerated deployment! Cooperation and support at the highest levels of DoD and Congress are necessary if we are to accomplish the requirements enacted into law.

INFORMATION DOMINANCE

To win future conflicts quickly and decisively, we need to gain and maintain absolute information dominance over our adversaries. The critical objective is to operate inside the cycle time of an adversary's decision process. Whoever has the ability to gather, understand and control information, and deny the same to

an opponent can quickly attain this advantage! Our defensive information warfare efforts aim to do just that by identifying system vulnerabilities, threats and risks and implementing appropriate countermeasures. If we can analyze, act and assess faster than an opponent, we will win.

Numerous improvements to our information dominance capabilities are underway. The **Joint Surveillance Target Attack Radar System, or Joint STARS**, which will reach Initial Operational Capability next year, will provide commanders an unprecedented awareness of the ground battle situation, much like AWACS does in the air arena today. In Operation Joint Endeavor, Joint STARS, while still a developmental platform, has proven its worth in supporting the United Nations Implementation Force with accurate, real-time situational awareness of ground activity. As for the **Airborne Warning and Control System (AWACS)**, we have initiated a major program which will extend its life well into the next century. AWACS will continue to be a primary force multiplier for our airborne assets due to the proactive capabilities provided through this life extension. In partnership with our NATO allies, we continue to upgrade AWACS in harmony with our own efforts. We also hope that within the next year NATO will select Joint STARS as its Alliance Ground Surveillance system and provide a core battle management capability complemented by other countries' ground and airborne systems.

Our reconnaissance force structure is also undergoing significant additions and upgrades. **Unmanned Air Vehicles** hold great promise as long endurance, low cost, attritable systems. They will augment our reliable and survivable U-2, RC-135 and space-based assets to expand our information dominance of the battlefield. Equally important, we are fielding an interoperable Command,

Control, Communications, Computers and Intelligence (C4I) infrastructure of deployable ground stations, data links, satellite communication and real time exploitation capabilities which will make intelligence data from our reconnaissance forces available to war fighting commanders with unprecedented timeliness.

Several programs are underway which will significantly improve the ability of our C4I systems to command and control forces and exploit perishable intelligence data. The ascendancy of the **Theater Battle Management Core Systems** and **Air Force Mission Support System** as the primary support tools for the Joint Forces Air Component Commander (JFACC) means air forces will have seamless information flow from the commander to the cockpit. These programs will fully support the philosophy and implementation of **DoD's Global Command and Control System (GCCS)**, and in fact will be key pieces of the GCCS architecture. Exchange of data between several of these systems is enhanced by the **Joint Tactical Information Distribution System (JTIDS)**, which enables command and control systems to share a common picture of the air situation.

Another mission that will never cease to exist is the protection of air sovereignty over North America. The bilateral program with Canada to upgrade the **Region and Sector Operations Control Centers (R/SOCC)** will ensure the success of this preeminent task.

Of course a large part of this capability to provide global information depends on our space based infrastructure. The Air Force continues to launch and operate 90% of DoD's space assets including Milstar, the most recent addition to

our space-based Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance capability. Milstar's worldwide, anti-jam, scintillation-resistant, low probability of intercept-and-detection communication features are critical to the interconnection of theater and national systems. The ability to tie together the near-real-time collection, distribution and C2 features associated with theater assets through a robust milsatcom capability will provide us with a significant combat edge. Specifically, the Air Force provides the joint force commanders with a broad range of air and space capabilities that allows us to take advantage of enhanced battlefield awareness..

SCIENCE AND TECHNOLOGY

Our ability to put leading edge technologies in the hands of our warfighters has been one key to the success of our national security strategy for more than four decades. We consistently invest in cutting edge technologies that exploit the inherent operating advantages of air and space and the modernization programs we are pursuing today will determine the nature and capability of our forces well into the next century. Thus, our Science and Technology (S&T) prowess remains the fulcrum of our future readiness.

We are continuing to aggressively fund our S&T Program with a balance that addresses both near-term and far-term warfighting needs. We are focusing our S&T efforts on technologies that will produce weapon systems that are both sustainable and affordable. Not only are we exploring and developing technologies within the Air Force, but we also have joint service and international cooperative S&T efforts underway that will make significant contributions to joint warfighting. We have teamed developers with warfighters to ensure the focus of our technology efforts is matched to real and identifiable

user needs. The Congress has consistently supported our efforts to field technologically superior weapon systems. These programs are about America's security, about deterring war, about winning decisively if war is forced upon us, and about minimizing casualties and collateral damage.

LEAN, AGILE ACQUISITION

A key challenge to our *Global Reach-Global Power* vision is keeping pace with meteoric advances in essential warfighting technologies. Acquisition processes designed under Cold War rules can no longer respond quickly enough to exploit radical shifts in design, much less technological breakthroughs. To take advantage of increasingly dynamic opportunities, the Air Force is building a lean, agile acquisition system.

Adopting and implementing new processes is an important first step and requires overcoming embedded barriers to change to include statutory and regulatory constraints, cultural biases, and fear of the unknown. These barriers are being overcome through dedicated, innovative leadership. The actions we take today will form the foundation for the lean, agile acquisition system of the future.

ACQUISITION REFORM

Eleven Lightning Bolt Acquisition Reform Initiatives have fueled an acquisition renaissance within the Air Force, building trust, empowering people, and strengthening teamwork (including teamwork with industry). Individually, each initiative has helped tear down specific barriers to progress. Together, they have created a momentum ensuring the Air Force provides timely, affordable, and advanced systems to meet the needs of our warfighters. Our reforms have

eliminated obsolete and redundant acquisition policies, provided streamlined processes and resulted in timely delivery of systems that meet the warfighters' requirements at a cost the nation can afford. Programs such as JDAM, PACER CRAG and Peace Shield are already showing results.

We have accelerated the JDAM program, giving the warfighters this crucial, advanced system one year early and completing production five years early. We have also increased JDAM's warranty from five to twenty years, reduced the average unit price by two-thirds, and saved $2.9 billion.

On PACER CRAG, a program that includes modifications and additions to the KC-135 aircraft's GPS, radar, and compass, we are able to reduce the KC-135 cockpit crew from three to two and also significantly enhance KC-135 reliability and maintainability. Our PACER CRAG team has reduced reporting requirements, eliminated unnecessary military standards and specifications and saved approximately $90 million which we then applied to other Air Force programs.

The Peace Shield program, an advance command, control, and communication system for the Kingdom of Saudi Arabia, is another acquisition reform success story. It enabled a program that began behind schedule to deliver a completed system six months ahead of schedule and $888 million under the Letter of Agreement. It also enabled Peace Shield to reduce its System Program Office (SPO) size from 325 to 105 and save over $25 million in SPO operating costs.

We have made substantial progress in reforming our acquisition practices and culture and generated nearly $13 billion of cost avoidance and savings over the FYDP. Our challenge for the future is to build on this success. Lasting reform is the result of improving both our business practices and our acquisition culture -- to make today's "acquisition reform" tomorrow's "business as usual." Our efforts to date mark only the beginning of the process and we are to continually looking for acquisition practices we can improve. The Air Force Acquisition leadership is committed to continuing our crusade to make acquisition better, faster, and cheaper.



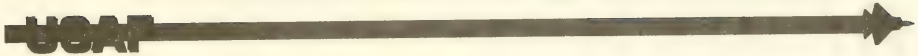
USAF

Streamlined Acquisition To Meet Air Warfare Requirements

Mr. Art Money
Assistant Secretary of the Air Force (Acquisition)

Lt Gen George Muellner
Principal Deputy

Global Reach



Strategic

C-5A/B

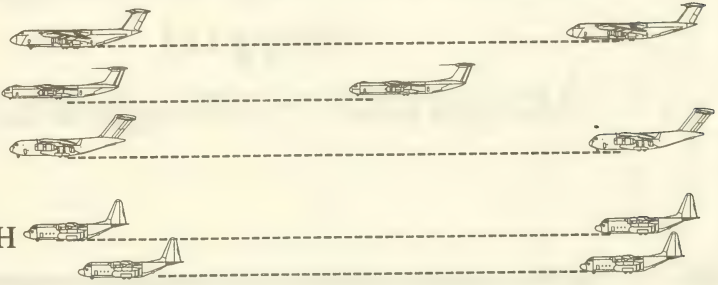
C-141

C-17

Tactical

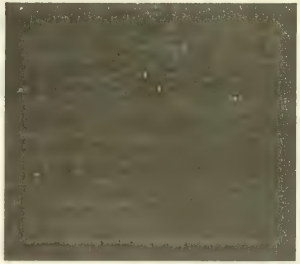
C-130E/H

C-130J



C-17 Globemaster III

USAF



- **Competition from Non Developmental Airlift Aircraft**
 Plus
- **Multi-Year Procurement of Aircraft**
 Plus
- **Multi-Year Engine Procurement -- 10% Unit Cost Reduction**

Resulted in

- **$5.3B Anticipated Savings and Cost Avoidance Over Life of Program**
 - $3.1B FY97-01
 - $1.3B FY02-03
 - $0.9B From Multi-year

Cumulative Savings and Cost Avoidance Over Life of Program

$5.3B

C-17 Multiyear Procurement

Multiyear Didn't Happen Overnight

- Jan 94: C-17 Program Capped at 40
- Feb 95: Should Cost Implementation
- Nov 95: Stratgic Airlift DAB
- Jan 96: Multiyear DAB
- June 1: MYP Decision

Why June 1?

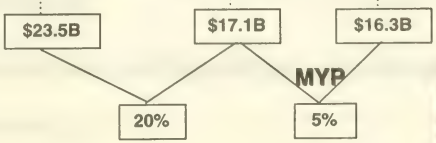
- Economic Order Quantity for inventory build-up and cost reduction projects
- Need to obtain vendor commitment for Lot 9 and 80 aircraft quantity--Lot 9 orders underway
- Missing Lot 9 costs up to 40% ($380M) in lost savings

MYP Is the Capstone of 2 Years of Intense Analysis, Negotiation, and Agreement



Why Only 5%?

- MDA contract price to complete 120 buy
- Savings to Firm, NEGOTIATED Prices

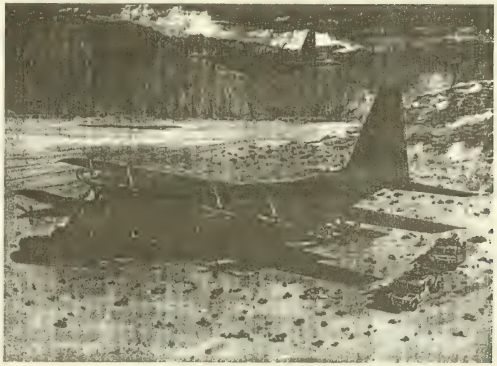


Overall 25% Reduction in Price from Acquisition Reform and Multiyear

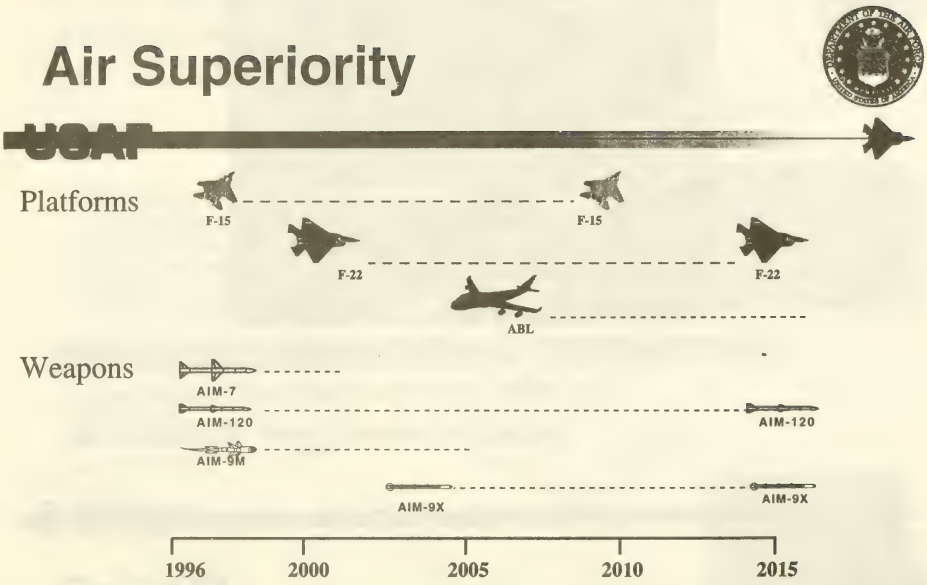
C-130J

USAF

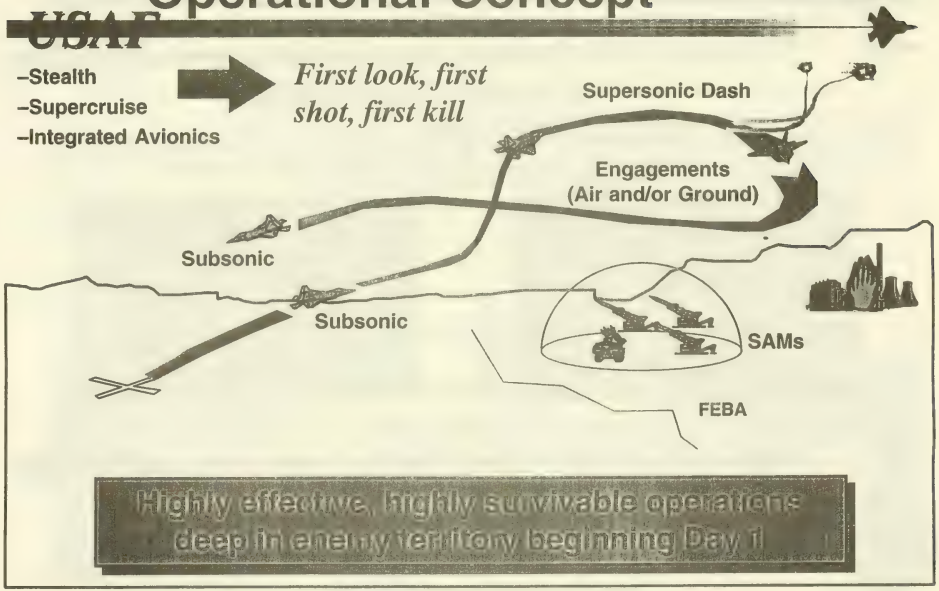
- Upgrading special mission aircraft
- Replacing tactical airlift as it ages out
- Initially procure at about 6/yr



Air Superiority



F-22--A Revolutionary Operational Concept



F-22 Unit Costs

(Based on FY97 PB)

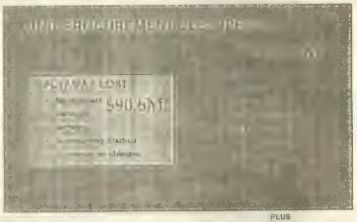
USAF

FY96 $



PROGRAM ACQUISITION UNIT COST (PAUC) $136.7M

TY $



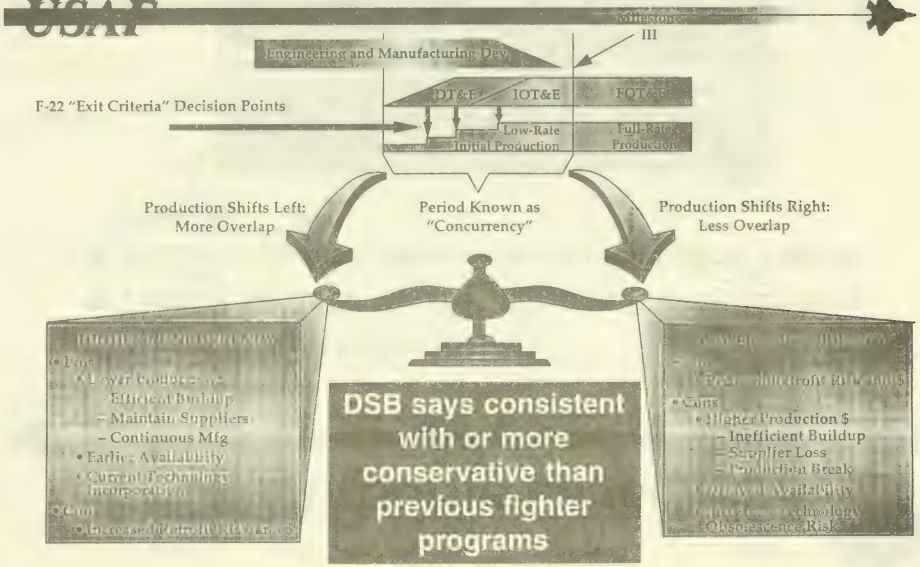
PROGRAM ACQUISITION UNIT COST (PAUC) $160.0M

Typical Comparisons Are Based on Unit Flyaway Costs In Constant Year Dollars

- F-22 Average Unit Flyaway Is $71M (FY96$)
- By Comparision, F-15E Unit Flyaway Cost In FY96 Is Roughly $53M

F-22 provides quantum leap in capability for marginal unit cost increase over current generation aircraft

F-22 Concurrency is Balanced: Minimizes Cost to the Taxpayer



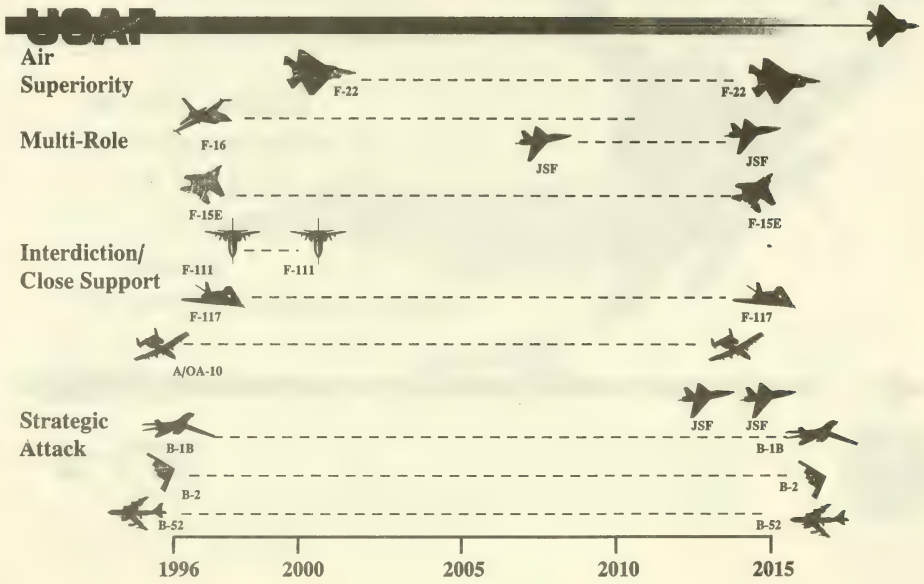
Airborne Laser

USAF

- Speed of light delivery
- Theater Ballistic Missiles killed in Enemy Territory
- Technology and integration risk mitigation plan in place



Precision Employment Platforms



F-15E

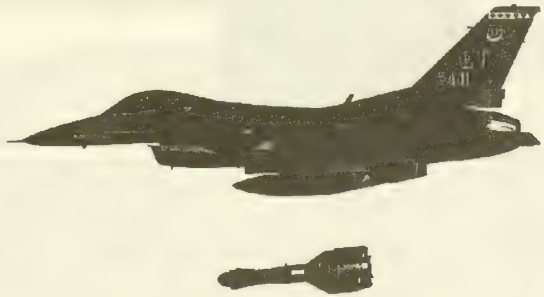
~~USAF~~

- **Require attrition reserve aircraft**
 - 2 in FY97
 - 6 in FY98
- **ALQ-135 Band 1.5**
- **Link 16/MIDS**



F-16

USAF

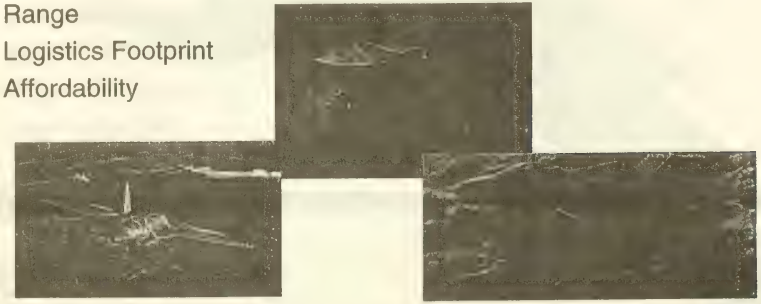


- Require aircraft to sustain multi-role force
- Link 16/MIDS

Joint Strike Fighter

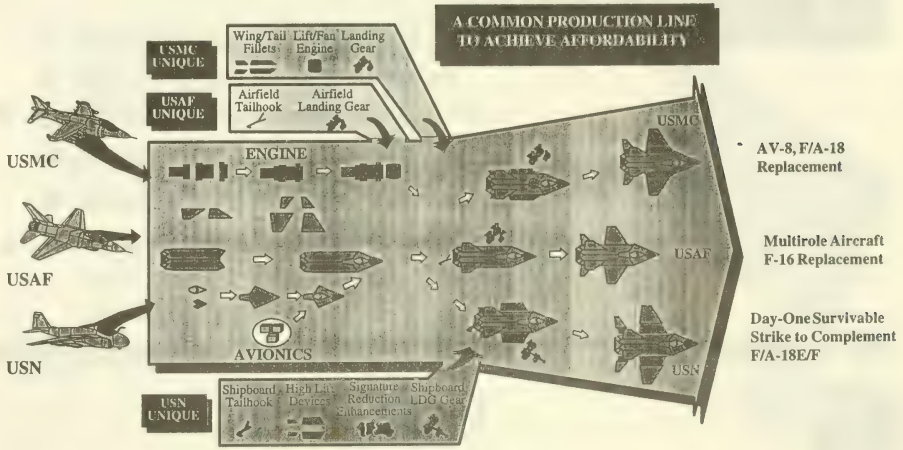
USAF

- **Air Force Needs**
 - Multi-role aircraft (primary A/G) to replace F-16 and later A-10
- **Key requirements**
 - Survivability
 - Range
 - Logistics Footprint
 - Affordability



JOINT STRIKE FIGHTER (JSF) PROGRAM
A Family of Three Aircraft

~~USAF~~



B-1

USAF

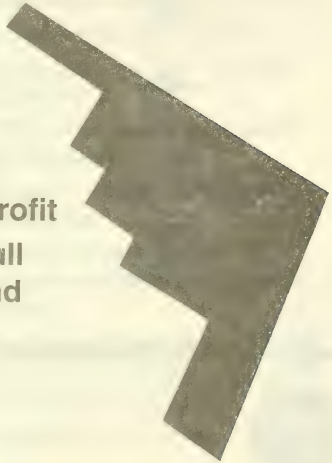
- **Conventional Munitions Upgrade Program provides**
 - Integration of Conventional Munitions
 - Defensive Systems Upgrade
- **Single contractor as integrator**
 - EMD for JDAM integration Jan 95
 - EMD Milestone II DAB Sep 96



B-2

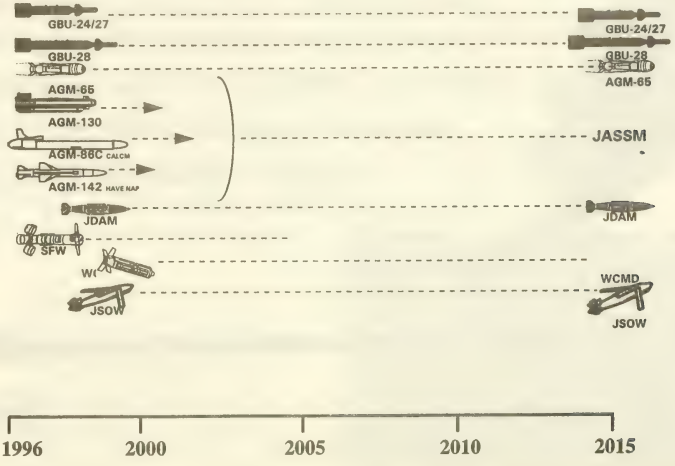
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- Aircraft deliveries continue
- Block fielding capability working
- First Aircraft back in Block 30 retrofit
- Near-term $ will modify AV-1 to full block 30 capability for training and attrition reserve



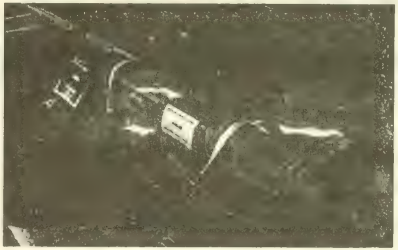
Precision Employment Weapons Plan

USAF



Joint Direct Attack Munition (JDAM)

USAF



- **1994 Designation as Pilot Program**
 - Use of Commercial Practices
 - Exemptions from Govt Unique Requirements
- **Avg unit Cost Reduced from $42K (1st 40,000 units) to $14K**
- **Accelerated Production / Buy to Budget Strategy**
 - Unit Cost Savings Applied to Procure as Many Units as Budget Allowed
 - 17% More Units -- At Less Cost
- **Cost Avoidance in Years Beyond FYDP Anticipated at $2.6B**
 - Available for Other Uses

Projected Cumulative Savings and Cost Avoidance Over Life of Program (including RDT&E and projected $12.7K unit cost)

$2.9B

SFW

Sensor Fuzed Weapon

USAF

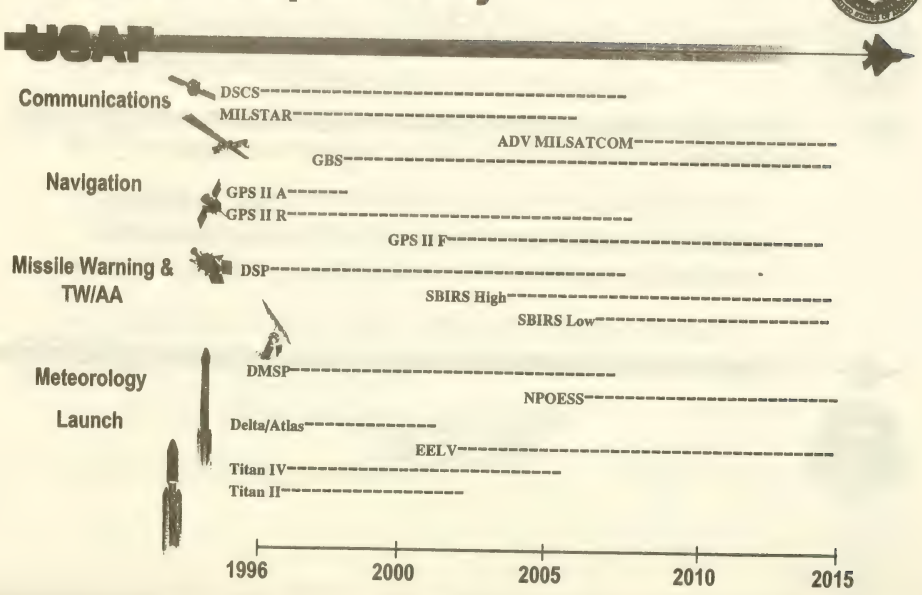
- Successfully completed all development and operational tests, to include countermeasures testing
- Currently in low rate initial production while producibility enhancements made
- Full rate production begins 1996
- P3I will enhance lethality

JASSM

~~USAF~~

- **Fills both the Air Force and Navy need for a precision stand-off weapon to hold heavily defended high value targets at risk**
- **Completes the picture for total force structure, leveraging the power of the B-1 and B-2 for several decades**
- **Flagship for CAIV**
 - Maximizing tradeoff between affordability and performance

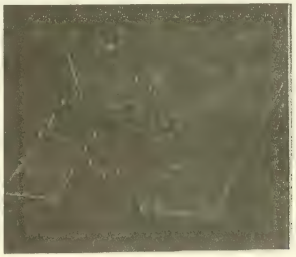
Space Superiority



GPS

USAF

- Space-based positioning bringing precision navigation and weapons delivery to all of our systems
- Consolidated ground segment contracting from six to one
- Cut development time for next sustainment block from eight years to five years
- Saved $80M in program cost



MILSTAR

~~USAF~~

- **Program**
 - Six EHF MILSATCOM Satellites to Provide Assured Communications to the Warfighter
 - First Launch 7 Feb 1994
 - Total Program Savings of $236M



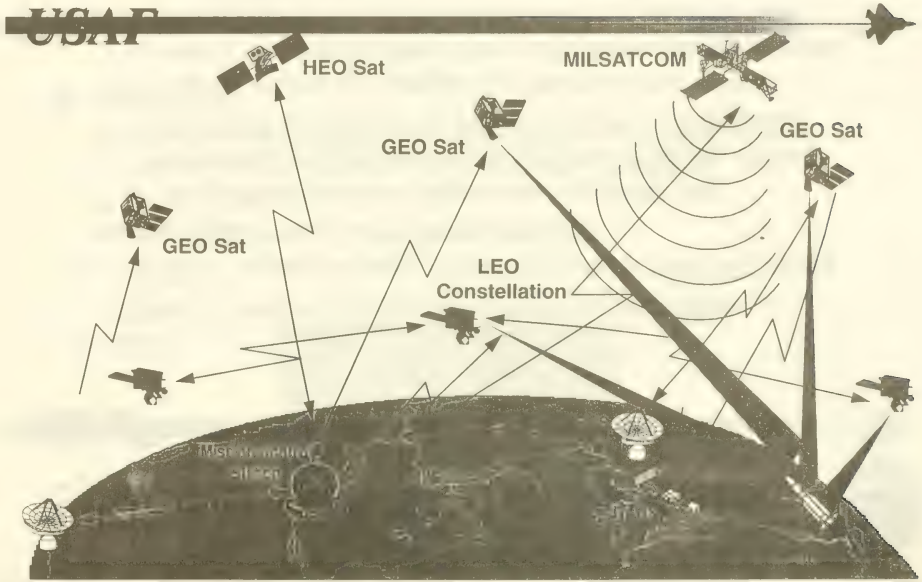
Space-Based TW/AA Status



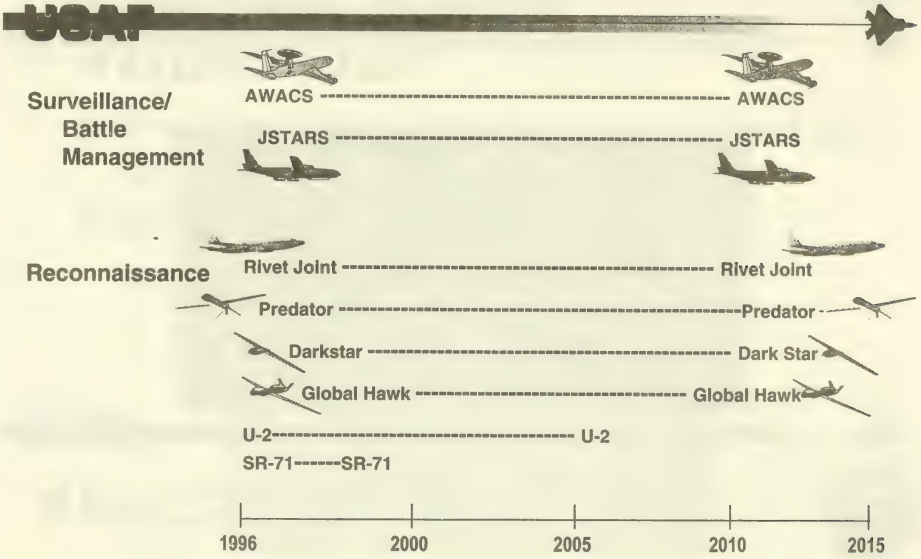
USAF

- DSP:
 Existing system of geosynchronous satellites
- SECDEF Space-Based Infrared System (SBIRS) study group approved future architecture:
 - Integrated system of ground segment and satellites in Geosynchronous Orbit (GEO), Highly Elliptical Orbit (HEO), and Low Earth Orbit (LEO)
 - SBIRS being developed to meet unified space based IR requirements for missile warning, missile defense, technical intelligence and battlespace characterization
 - SBIRS will replace DSP system

SBIRS Architecture



Information Dominance



AWACS

USAF



- EXTEND SENTRY
- Open system architecture
- CEC Evaluation
- Re-engine

Joint STARS

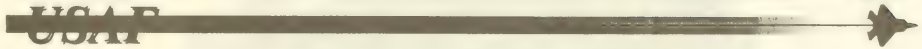
~~USAF~~

- First production aircraft being accepted as we speak
- Will be procuring 2 per year

 Desire to accelerate to 4 in FY97



Science and Technology



- Balanced program between Basic Research, Applied Research, and Advanced Technology Development
- FY97 PB -- $1.271B
- Maintaining 80% contracted, 20% in-house ratio
- S&T workforce drawing down by 39%
- FY97 PB Focus
 - Aging Aircraft
 - Crew Escape
 - Information Dominance
 - Space Technology
 - Training
 - Hypersonics
- New World Vistas

New World Vistas

USAF

- Scientific Advisory Board
 - New World Vistas
 - Air and Space Power for the 21st Century

Electronic Access at:
http://web.fie.com/fedix/vista.html
sab.secretariat@afsb.hq.af.mil



Summary

USAF

- Acquisition budgets are decreasing
- Acquisition streamlining is working
- Affordability is a key performance parameter to the warfighter
- The Air Force is working to keep our key acquisition programs on track through tough budget decisions

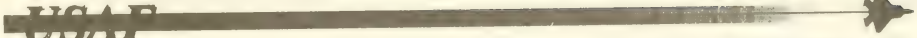
Air Force Acquisition

~~USAF~~

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PGM Capabilities



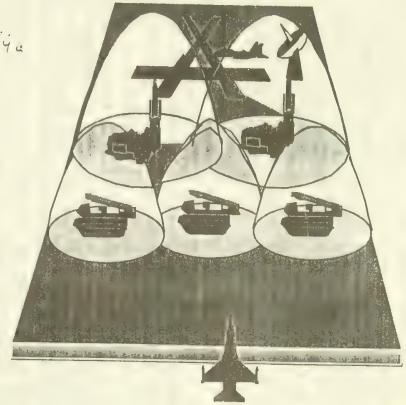
	Direct Attack	Standoff Outside Point Defenses	Standoff Outside Area Defenses	Standoff Outside Theater Defenses
PRECISE	LGBs Maverick		JASSM	JASSM
ACCURATE-UNITARY	JDAM	JDAM		
ACCURATE-SUBMUNITION	WCMD	JSOW		

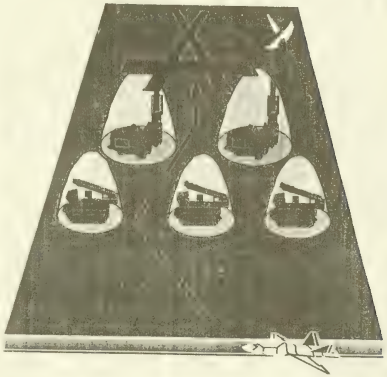
SHORT MEDIUM LONG

RANGE

Survivable

~~USAF~~





STATEMENT OF LT. GEN. GEORGE K. MUELLNER, PRINCIPAL DEPUTY, ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION

General MUELLNER. Thank you, Mr. Money.

With your permission, I will run through some charts, to try to set the stage relative to the major programs that constitute the Air Force modernization and recapitalization effort. They will be in a phased approach that will address first the mobility and then step on to the other areas that Mr. Money already alluded to.

Throughout this, I might add, I am going to try to incorporate some specific examples where acquisition streamlining, even in ongoing programs, has already achieved some significant impacts.

In the area of global mobility, which is one of the major elements that the Air Force, as a force provider, brings to the joint war fighter, obviously, our major platforms are reflected here. And I think you all have hard copies of this, if they do not show up well.

In the out-years, our major force will migrate down to where we have C–5's; the C–17 replacing the C–141 in the strategic role. And then on the tactical side, we will see a modernization of our C–130 force, which provides the tactical airlift and a lot of special mission capability, as I will talk about. So I will talk in a little more detail about probably the two high-interest items, which are the C–17 and the C–130.

The C–17, obviously, has turned into a real success story. It did not start out that way, I might add. It really was a very troubled program some years ago. But by getting in, working as a team with the contractor, the program did indeed resurrect itself. And in fact, with consideration of the multiyear proposal which has been before us all, the unit cost of that has gone from $338 million a copy down to $173 million a copy—a significant improvement. This is a result not only of improved program structure and acquisition streamlining, but also an aggressive proposal brought forward by the contractor.

I think some of the key items that are associated with this is the fact that the savings to the taxpayer and, most importantly, in the case of the near-years, the additional money that can be used for other modernization activities, is quite large: $5.3 billion total, with $896 million just being associated with the multiyear savings.

If I could, let me go through that in more detail, because I know that is an item of interest to all of us. A little bit of background on the program. Prior to last January, 1994, that is, the program was, of course, capped at 40 aircraft. We came back with an estimation of what it would take to take that program to, indeed, a level where it could replace the 141, as it was originally intended.

That took a period of about until last November 1995, when we finally had a defense acquisition board that came together and identified the fact that, yea, verily, we needed this stuff, for an additional buy of 80 aircraft, to take the total program content to 120.

Back in February 1995, the independent cost assessment—the should cost—identified that that program would cost us about $23.5 billion. Through some very rigorous negotiations with McDonnell Douglas Corp., we worked that program content cost down to $17.1 billion, a significant reduction, about a 20-percent reduction, as shown here.

Following that we were tasked by the defense acquisition executive, Dr. Kaminski, to go back and look at various proposals, or max affordable rates, and specifically to look at the option for multiyear. With that news out there, McDonnell Douglas came forward and, on top of the firm negotiated agreement we already had, made an offer for an additional 5-percent reduction with a multiyear contract. That multiyear would constitute 7 years in execution, and in the latter years we would be building, the rate would be about 15 aircraft per year. That is what constitutes the total savings, and takes us down to a $16.3 billion program.

And again, I would like to emphasize that this part of the activity here is really a result of the program restructure and the cleanup of their activity and really some tough negotiations. This is what is reflected, and this is the infamous 5-percent number that has gotten a great deal of visibility.

Mr. MONEY. I might add here, Mr. Chairman, that there have been several questions about, why June 1? Today roughly 55 percent of the purchase orders for lot 9 are already being ordered. We need to tell the contractor to build eight or 80 aircraft, and that is why the June 1 date is so important to us.

General MUELLNER. The C–130J, as you saw on the bottom of the earlier chart, really makes up our tactical airlift force. Beyond that, though, it also makes up that force that we use for our airborne command and control mission, that we use——

Mr. HUNTER. I will tell you what.

General MUELLNER. Please.

Mr. HUNTER. General Muellner, since this C–17 thing is the issue of the day—and I mean a big, big issue for Congress—you have gone over a number of points on it. While we are fresh on that issue, why do you not put that chart back.

General MUELLNER. You bet.

Mr. HUNTER. And let us analyze this thing while it is fresh here, and then we can go on at a later time. I think there are some members that are interested in this.

General MUELLNER. Great.

Mr. HUNTER. Let me first ask you to lay out for the members simply, what was the Defense Acquisition Board (DAB) that we had last—Was it October?

Mr. MONEY. November.

General MUELLNER. November.

Mr. HUNTER. Or November, and the DAB decision decided whether or not we would build 80 more aircraft, basically, from a base of 40, right?

General MUELLNER. Right.

Mr. HUNTER. Whether we would go to the 120. Is that accurate?

General MUELLNER. That is correct. That DAB also included a decision to go with C–17's, vice a mix of C–17's——

Mr. HUNTER. Rather than nondevelopmental.

General MUELLNER [continuing]. And the 747 family.

Mr. HUNTER. OK. Now, one question that I think we have to ask you is, why have you proposed—and Mr. Secretary, maybe you are the one who can answer this. This is the longest and largest multiyear defense contract ever offered, I believe.

Mr. MONEY. That is true.

Mr. HUNTER. And so, as the authorizing committee, I think the National Security Committee's question to you is, why have you gone forward with the biggest multiyear contract in history without providing to the authorizing committee the opportunity to conduct prudent oversight, to seek that approval?

Mr. MONEY. I am certainly glad you asked that question. Mr. Chairman, the multiyear decision was made in January of this year. Immediately after that decision was made, AQ, the acquisition part of the Air Force, had people over here talking with both authorization committees in both Chambers, as well as both appropriation committees, at the staffer level.

We offered to talk to members, and we had not received any replies to that invitation. So we felt we were over here, informing both the authorizers as well as the appropriators.

We understand that that decision was totally out of cycle with what all goes on here, as well as in the Pentagon, in the fiscal cycle. But the reason for doing all this was, the numbers, when we went into the multiyear analysis, as General Muellner points out there, create over a 25-percent savings for the program, and an additional roughly 900—$896 million that we can then use elsewhere in the modernization accounts.

Mr. HUNTER. OK. Now, if you will hold up on that, because that is getting into the meat of the matter, let us go through that now. What are the changes that are made to the pre-January decision plan that accrue that savings? Had you not made this agreement, what would we be doing right now?

Mr. MONEY. We would be procuring eight aircraft this year.

Mr. HUNTER. OK. At what rate, or at what cost?

Mr. MONEY. It will be back at the 17.1 number.

General MUELLNER. This would be the total program cost. The individual cost to those airplanes would go up by approximately $10 million a copy. So vice the 173 number that I mentioned earlier, you are up around 183.

Mr. HUNTER. OK. So for the members of the committee, basically, what you are saving with the deal that has been offered by the contractor is $10 million a copy.

Mr. MONEY. Yes.

Mr. HUNTER. Right? And in return, they are getting a multiyear—All they could be guaranteed before the deal is essentially what? What were they looking at?

Mr. MONEY. They would be looking at 1 year and procurement of eight aircraft.

Mr. HUNTER. Of eight aircraft, with some assurance that the aircraft were proving out fairly well and they could probably expect more. But a 1-year procurement of eight aircraft, and with the implications and the ramifications with respect to their vendors that that is what they had.

Mr. MONEY. Exactly right, 1 year at a time.

Mr. HUNTER. OK. And in shorthand, their offer to you was to go to a 7-year buy, right?

Mr. MONEY. We looked at this together, Mr. Chairman. It was not just the contractor.

Mr. HUNTER. No, I understand.

Mr. MONEY. We were asked—Dr. Kaminski came back and asked us, with the best possible deal, what would that look like.

Mr. HUNTER. OK. So explain it to the members. So the contractor came back and offered to go to——

Mr. MONEY. The lowest-priced aircraft over the timeframe, with 80 being procured; ended up being a 7-year multiyear contract, where they would then have funding stability so they could in fact get the economy of scale on parts with their vendors, work best deals.

Mr. HUNTER. OK.

Mr. MONEY. That is what this whole thing boils down to, in that regard. In the context of doing that, $896 million additional would be saved. That was very attractive to us, because then we could roll that back into the other modernization efforts.

Mr. HUNTER. OK Now, Mr. Sisisky, do you have a question on inflation?

Mr. SISISKY. Yes. How about inflation? Is that counted in, or is it a fixed price for 7 years?

General MUELLNER. That is accommodated in that. The net present value of this funding spend-out is, for the aircraft side, 615 positive, and almost 100 million positive on the engine side; which gives us a net present value of $696 million on the positive side, which is a rather significant net present value.

Mr. SISISKY. I do not think I understand you. Tell me about inflation. This is a simple question.

General MUELLNER. Yes. That is an inflation-protected number, is what I am telling you.

Mr. SISISKY. So the price will be the same 7 years from now? Am I understanding you?

General MUELLNER. The contract offer from McDonnell Douglas is a fixed-price offer.

Mr. SISISKY. Fixed price.

General MUELLNER. That is correct.

Mr. SISISKY. That is the price we will have in 2002 or 2003, no inflation in dollars, then?

General MUELLNER. That is through this contract, for the 80 airplanes.

Mr. MONEY. Over the 7 years.

Mr. HUNTER. OK. Let us go to the rate. Obviously, if you procured 8 a year at 7 years, that is 56 aircraft. What is your rate, and what is the ramp-up in rate?

Mr. MONEY. Let us see. The profile is, in fiscal year 1997, 8 aircraft; in 1998, 9 aircraft; in 1999, 13 aircraft; in 2000 throughout 2002, 15 aircraft a year; and then in 2003, 5 aircraft.

Mr. HUNTER. OK. Is it your analysis that this rate, this ramp-up, is the most cost-effective rate? Let us say, if you had a Reagan defense budget instead of the Clinton defense budget, would you be building more of these in the early years? In other words, could you compress that buy, and could you be building 15 aircraft earlier than later?

Mr. MONEY. We have a plan if additional funds and approvals came in that we could go 9 versus 8 in 1997, 11 versus 9 in 1998, then get 15 in 1999, and end a year sooner.

Mr. HUNTER. Now, what plan is that?

Mr. MONEY. That is a contingent plan based on some inquiries and formal inquiries that we received from the staff here.

Mr. HUNTER. OK. When you say a contingent plan, there are some other things, there are some other balls in the air right now? What you have just described to us is not the only game in town?

Mr. MONEY. This is the plan that we have, and this is the multiyear that we came to Congress to get approved with.

Mr. SAXTON. Mr. Chairman, would you yield?

Mr. HUNTER. Yes, I would be happy to yield. And if members have questions on this, we will just kick this around informally, and let us try to understand this fully. I will yield to the gentleman. Go right ahead.

Mr. SAXTON. Gentlemen, under the scenario that you have outlined here, tell us what the per-unit cost is.

General MUELLNER. The per-unit cost under the average per-unit cost, fly-away, is $173 million. That is with the 7-year multiyear. That is with that 5 percent savings. As I said, without that, if you just go to the max affordable rate, it goes up about $10 million.

Mr. SAXTON. Right. Now, the chairman was just pursuing an alternative plan, which meant that we would not have a 7-year buy, necessarily, but the five aircraft that would be built in the seventh year would be moved forward to years 2, 3, and 4?

Mr. MONEY. Yes.

Mr. SAXTON. Is that correct? And what kind of savings would we realize if we did that compressed plan?

General MUELLNER. The answer to that is about $300 million across the stretch of the program. As I said, or as Mr. Money said a minute ago, we just scoped that out, and so we do not have that firm back from McDonnell Douglas. But what that requires is additional resources in 1996 and 1997 to the tune of $300 million to $350 million a year. And then after you recover that, you will then save another $300 million beyond that.

Mr. SAXTON. I understand. Of course, 176 and 176 comes to more than 300,000, but it is almost like getting two free airplanes, if we compress the buy. Is that correct?

Mr. MONEY. Yes, that is true, but I wanted to point out, those are very preliminary numbers based upon an inquiry we just got very recently from the Hill here. The plan that we have really laid out today was based upon the 1996–97 constraints that we are operating with. And we can come back at a later time, but frankly I do not want to derail where we are with this plan.

Mr. SAXTON. I understand. But you know we have a responsibility to try to do the best we can with the taxpayers' dollars.

Mr. MONEY. Yes, sir. You bet.

Mr. SAXTON. And if we can end up with two aircraft additional for the same cost over the 7 years, that certainly is an option that we need to look at.

Mr. MONEY. Fine.

Mr. SAXTON. Thank you, Mr. Chairman.

General MUELLNER. Yes, sir; and we would be glad to get those numbers and report them back to you.

Mr. HUNTER. Yes. Mr. Sisisky.

Mr. SISISKY. Is there a contract that our staff on this committee could see? I am still worried about the inflation issue. Are you sure there is no inflation clause in that contract?

General MUELLNER. Sir, the 173 number is an average unit cost.

Mr. SISISKY. Well, what happens if the economists are wrong and inflation doubles of what they expected? Is there an inflation clause?

General MUELLNER. I would assume there is. I have glanced at the contract. I did not read it in total. We would be glad to get that for you.

Mr. SISISKY. Well, since we are the oversight, I think——

General MUELLNER. Yes, sir.

Mr. SISISKY. You know, not that everybody would understand the contract, but I think that some people would.

General MUELLNER. We would be glad to provide that for you. And sir, we would be glad to provide the distribution costs throughout the life cycle of the program.

Mr. HUNTER. Well, we are not asking for anything complex; just whether or not there is an inflation clause in the contract.

General MUELLNER. Yes, sir. That was an average unit cost, as I said. It changes throughout it.

Mr. HUNTER. OK. Well, thank you for your description of the program.

Mr. CHAMBLISS. Just before you leave that, I am curious, if you do add additional airplanes on the front end of that contract, what is that going to do to your C–141 phaseout?

General MUELLNER. It will, obviously, change that, because the C–17 is, indeed, a replacement to the 141. So it will change those units that on the front end it would accelerate, that changeout by some degree. As Mr. Money pointed out, that activity that was discussed takes that fifth year, which is the ramp-down of the program, to five aircraft, as I recall, and brings those five aircraft forward. So as a result of that, you would complete this a year earlier. So that would, indeed, affect the bed-down structure, also.

As I said, all we have gotten is very preliminary data, in response to that request.

Mr. BATEMAN. Mr. Chairman.

Mr. HUNTER. Yes, go right ahead.

Mr. BATEMAN. I am intrigued by the June 1 decision time line. In fiscal year 1997 you are still going to procure the eight that were originally contemplated. Then what is the magic of June 1, a date which is very disruptive of the normal authorization and legislative——

Mr. MONEY. Yes, sir. Again, the reason for that is, for lot 9, 8 aircraft, or 80? Those orders are now being let by the contractor. We need to let them know by June 1, and at that point roughly 60 percent of those purchase orders will be out, so we can build. They need to be told if they are going to build 8 or 80. That has the whole leverage on the amount of savings we can achieve here.

If they go out for 8, then they are not going to get the economy of scale relative to the parts, the material, etcetera. But if we do have the authorization to go ahead from Congress at that time, then they can go out and order 80. Therefore, then, we will have this roughly—not roughly, $896 million savings.

Mr. BATEMAN. Why would they not be in a position to negotiate with their suppliers and subcontractors a conditional price for eight, but what is your price assuming it is 80, and then implement that price alternative after the authorization had taken place?

I find it difficult to believe there was no way to do this on a timeframe that would give the Congress the opportunity to play its normal role. And I am not saying this to say this is a bad idea. It may well indeed be a good idea. But I do not understand the necessity, or that it would have been unavoidable to achieve this with a timeframe that is different than a June 1.

Mr. MONEY. Let us see. Let me try to explain it this way. What I understand your question to be is could they have a contingency plan to order 80? I believe that is true; they could. We would then start losing, though, if we do not tell them to order 80. It is only on contingency that they would order 80. We would start losing the economy of scale for the next eight, anyway.

So this lot that currently needs to be under production so we will have the eight aircraft in fiscal year 1997, if you roll that together with the 80, will achieve the savings. If we say, "Go with eight in 97, but have a contingency plan," the saving starts to erode, and it erodes something like $130 million in the next 6 months.

Mr. BATEMAN. The administration's budget request for fiscal year 1997 also includes at least some profile as to what future Presidential budget requests will be in the later years. By virtue of this proposed multiyear procurement, do you anticipate adjusting the out-year or the later-year budget profile, the top line to the Department of Defense? Or are you saying that those figures will remain constant, but we will spend more money on this program than was originally contemplated, thereby having less money for all other programs?

Mr. MONEY. Yes, sir, the latter. This is the highest priority in the Joint Chiefs of Staff, in the Air Force, Army, etcetera, is to get strategic airlift. This answers that question. You are absolutely right. The 7-year will lock us into providing those 80 aircraft.

Mr. BATEMAN. No; that was not my question.

Mr. MONEY. I misunderstood you.

Mr. BATEMAN. My question is, are we going to see an adjustment in the administration's request, top-line request, for 1998, 1999, 2000, 2001, to reflect this increased buy, this multiyear procurement?

Mr. MONEY. This will be put into the Program Objective Memorandum [POM], but it is in the same numbers that we have forwarded in the previous——

Mr. BATEMAN. In other words, this program will come out of the hide of some or all other programs?

Mr. MONEY. Yes, sir.

Mr. BATEMAN. You are not going to increase the top line to reflect the fact that you are spending more money on this program than was originally a part of the POM?

Mr. MONEY. That is right.

Mr. BATEMAN. Well, the answer is, "That is right," but I think that is wrong.

Mr. MONEY. OK.

General MUELLNER. If I could make a comment, sir, the original program that was budgeted was the one that reflects there. The multiyear buy saves us money, not costs us more. So as a result of that, that $900 million—$896 million—is going to be applied to other modernization accounts.

So it is not a case where this multiyear buy—We had always, since that budget was put together that you talked about, programmed in the buy of those 80 airplanes. That was the decision that was made by the DAB.

Mr. HUNTER. Yes. If the gentleman would yield, that was following the DAB. The DAB decision was a determinant of whether or not we went ahead with an additional 80 aircraft, for a total of 120. The 120 has always been in the plan.

Mr. MONEY. Yes.

Mr. HUNTER. In the President's plan, and in the top line that we presently see. And the multiyear will actually pull down the cost of those 120.

So, Mr. Money, either you did not understand Mr. Bateman's question, or you answered it erroneously, because he said, "Will this new program now come out of the hide of other programs?" and you said, "Yes."

Mr. MONEY. Well, what I meant—I misunderstood you, Congressman. What I meant was, that has already been programmed out there. And as General Muellner said, we are going to then save by the multiyear, the economy of scale of doing this, the $896 million.

Mr. BATEMAN. Well, Mr. Chairman, if I may clarify this, I understand that the multiyear procurement will decrease the amount of money you will spend for the 80 aircraft. But it also accelerates the buy. And so, while you will save money over time, you are going to invest more money each year, by buying more than eight planes a year.

Mr. MONEY. No, sir; it does not accelerate the buy. That was the original plan.

General MUELLNER. Sir, the decision that was made at the DAB was to go out and structure a program to buy 80 aircraft at the max affordable rate, based upon the budget that we had, the budget authority that had been programmed. So what we are talking about here in the case of the multiyear is, starting with that as a baseline, which was a program baseline, by going to the multiyear we reduce the top line required to buy those 80 aircraft by $896 million.

So we have actually freed up that money, because it stays in the modernization accounts in this case, for other modernization activities. So that was always the program top line, was to buy, based upon the DAB direction, at the max affordable rate.

Mr. HUNTER. So, if the gentleman will yield, what you are saying is, that under the plan you have got now—Now, you just read off the aircraft go in succeeding years, 8, 9, 13, and 15. Is that right?

Mr. MONEY. That is right.

Mr. HUNTER. That is your ramp-up. Before this agreement, it could be presumed to be that same rate? In other words, that was always the anticipated rate of production; is that right?

General MUELLNER. Based upon the DAB decision——

Mr. HUNTER. Right.

General MUELLNER. [continuing]. That was indeed the rate.

Mr. HUNTER. So you are saying, even in those 3 years, the next 3 years and not the out-years, the later years, you are still going to save some money in those 3 years because you have got the better deal per plane?

Mr. MONEY. Absolutely.

Mr. HUNTER. But the alternative plan that is being looked at is 9, 11, and 15 aircraft in those 3 years, respectively. And I would say to my friend from Virginia, that would be an extra plane the first year, 9 instead of 8; 2 extra planes the second year, 11 instead of 9; and 2 extra planes the third year, 15 instead of 13. And we will have to pay for those.

Mr. MONEY. Yes.

Mr. HUNTER. So that will be additional dollars.

Mr. MONEY. If you accelerate the program.

Mr. HUNTER. Yes. I guess my question would be, will you recommend to the President that he lift the top line to accommodate that? Because it could be fairly stated in answer to Mr. Bateman's question that that would necessarily require extra money and come out of other programs.

Mr. MONEY. The accelerated program would indeed require extra money in the near term, yes.

Mr. HUNTER. I thank the gentleman for yielding.

Mr. BATEMAN. Well, Mr. Chairman, I hate to expend any unnecessary time on this, but the logic——

Mr. HUNTER. I think this is an excellent line of questioning. Go right ahead, Mr. Bateman.

Mr. BATEMAN. Well, the logic of this to me is that if there was a POM that contemplated buying 80 planes on a different schedule, and you had a figure in the budget such that that figure, even though you are saving something by multiyear procurement, is going to cost more than was in the original POM, that leads me to think that the logical thing to do is that your spending profile for later years needs to be increased to reflect the cost of the increased buy, even though the unit cost is going to be lower and you are ultimately going to save money.

General MUELLNER. Sir, if I go back to the left side of this chart, when we were at this point in time, our program was capped at 40 aircraft. That was when we were told to go out and work a program to look at continuing it based upon the success that we were seeing in the deliveries, both in quality and schedule.

Mr. BATEMAN. But bear with me.

General MUELLNER. Please.

Mr. BATEMAN. When you were planning on the basis of being capped at 40, you had to make some budgetary assumptions reflecting that fact for each year through the 5-year spending profile. When you changed that, and you are not going to buy 40, you are going to buy 80, yes, you are going to save some money on each. But if you are going to increase the buy in 1999 by five planes, it is going to be more than you had budgeted for 1999 in the original POM.

So my question is, why would you not be increasing the fiscal year 1999 projected defense budget to reflect the increase in outlays in 1999?

General MUELLNER. Sir, that is a good question. The problem is that what we had budgeted at this point in time was not a C–17 line. We had a strategic airlift line, because there was still a decision to be made as to whether that would be C–17's or some nondevelopmental aircraft.

The direction that came out of the DAB that Dr. Kaminski held was to put together an acquisition strategy that lived within the total budget line. So what we had budgeted without C–17 being the specific product to receive the funds did not change. In fact, in actuality, it has come down in some years.

And that is because, as I said, we did not have identified here what that program was going to be; whether it would be C–17 or the nondevelopmental aircraft. That was a decision yet to be made.

Mr. MONEY. And then, between November and January, our job was how to maximize the return on what that money that was already established would be. And that is where this multiyear then came from in the original plan here.

Mr. BATEMAN. Well, I would like to have you furnish us with the original spending line for strategic airlift over the 5-year period that the fiscal year 1996 budget was predicated upon; contrasted with what the spending profile for the multiyear procurement would be.

General MUELLNER. We would be glad to do that, sir.

Mr. MONEY. You bet.

Mr. HUNTER. Can you get that fairly soon for Mr. Bateman?

General MUELLNER. Yes, sir.

Mr. MONEY. We will get it back to you by first thing Monday morning.

Mr. HUNTER. And I think, Jane, did you have a question on this? Go right ahead.

Mrs. HARMAN. Yes, on this point, because I think it is a healthy line of questioning. And I think your clarifying the fact that there was always money in the budget for strategic airlift is very helpful.

Mr. MONEY. Yes.

Mrs. HARMAN. My question is, obviously, you want the multiyear buy to save money. Is there any chance that Mr. Bateman's information will show that you are reducing the amount of money spent for strategic airlift because you are taking this option of a 7-year multiyear buy starting now?

Mr. MONEY. Yes, madam. We are saving $896 million by the multiyear.

Mrs. HARMAN. By the multiyear. But again, in the context of strategic airlift, if we had decided to do something else, such as purchase some of these nondevelopmental aircraft or some kind of retrofitted 747's or any kind of mix that we might have picked, those projections could have been, or would probably have been, higher than the projection now, based on this multiyear buy of 80 more C–17's.

General MUELLNER. Madam, if you look at the decision that was made here in November 1995, the decision there was a—if you will excuse the term—best value. And I do not mean that in its normal economic sense, but I mean that as a balance against operational requirements. And that trade-off was indeed a nondevelopmental aircraft, vice C–17, and several mixes of the two.

That decision, with the full support of the JROC, was to go with a full 80-aircraft buy. And so, as a result of that decision, there has indeed, from that wedge that I talked about being in there for strategic airlift, been a decrease in the amount of money as a result of this decision.

Mrs. HARMAN. Mr. Chairman, could I just say one more sentence?

Mr. HUNTER. No, go right ahead, yes. We want to work this out here.

Mrs. HARMAN. Thank you. You are hearing some disgruntled folk. And I have to say, now that I understand what kind of consultation was attempted, I rather agree with them. I wish the consultation had been better with this committee and with the appropriators in January. I think this whole thing would have gone down a lot easier.

And I would suggest that, if anything else like this is being contemplated, that a higher level of consultation be attempted before any plans are made.

Mr. PETERSON. Mr. Chairman?

Mr. HUNTER. Yes, go right ahead.

Mr. PETERSON. Mr. Bateman brings up a good point. And I am not so sure that Mr. Money has answered it as well as I would like for him to have answered it. Clearly, there is actually money to be saved if we go to a 6-year program. And if we could move the five from the fly-2003 to the 1997–98, we could save another $300 million. That's about $4 million per copy.

But I think a conscious decision was made by these gentlemen not to do that because of the very reason that Mr. Bateman made his point: that it would very seriously impact on these early-year acquisitions that we are into now. And so I think that they did take this into account. They can answer for themselves. But there is another play in this thing.

Clearly, the process of priority here and operational requirements, as the general has noted, have been driving this. But then, ultimately, you get down to what is economically feasible, and what can you do in order to spend money to save money?

We are going to save money here. And we are going to in out-year really make a significant savings in out-year accrual of savings that allow us to move money elsewhere. But, you know, there is a point where you cannot do that any more. And I think I would like for you to comment on, essentially, what I have proposed here. You know, we could in fact go to 6 years and save another $300 million.

Mr. MONEY. Yes, sir; you are absolutely right. But let me try—obviously, my answer was not adequate. When we were told to go back and look after the DAB decision in November to buy 80 C–17's and then come back by January with the best possible deal—what is the best rate?—but all of that was within the constraints of the wedge; meaning what the strategic airlift was over the various years. So that was the additional constraint that I think that Mr. Bateman was also asking about.

So that was an additional constraint on it, and that is why we came in with 8, then 9, then 13, and then eventually getting to 15. You are absolutely right.

Mr. HUNTER. That is an excellent question, and I think you have framed the issue very, very well, with respect to Mr. Bateman's inquiries. You had a funding wedge that was prepared that anticipated a DAB decision that would go forward with 80 additional aircraft, and the allotted annual buys that are manifest in that total package.

But you did not plan for additional funds that might be required in the early years for the "accelerated plan." Is that the essence of your answer?

Mr. MONEY. Absolutely right.

Mr. HUNTER. OK. Yes, anything else here, Mr. Peterson?

Mr. PETERSON. No, Mr. Chairman.

Mr. HUNTER. OK.

Mr. PETERSON. Thank you.

Mr. HUNTER. Yes. Mr. Taylor.

Mr. TAYLOR. Thank you, Mr. Chairman.

Last year, this committee spent a pretty good bit of time trying to compare the value of a mixed acquisition of 747's and C–17's. Where did the results of that study go? It is my understanding now that the 747 will fly farther, carry more, and cost about $150 million a copy. So the savings that you talk about—if I am not mistaken, you are talking about $173 million a copy. Who made the decision not to purchase any 747's, and why?

General MUELLNER. Sir, that decision was made as part of that DAB process in November. Nondevelopmental airlift aircraft [NDAA], As I said, we went into that DAB with the options of C–17's, the aircraft you are referring to, or some mix being the right approach. Based upon several studies, one a tactical utility study that was done, and also another one which is called "MRS. BURU," which stands up for a strategic airlift bottom-up review study, that set the baseline for what the lift requirements were going to be.

The issue is not just how much cargo you can carry, but how much through-put you can get through some of the aerial ports and the other facilities that you need to get in and out of. The major limitation of the larger aircraft such as the 747 is, while it carries a lot of cargo, it also takes a long time to load, unload, and also is very restricted as far as ground operations.

As an example, a 747 200 or 400—nor a C–5—could not get in and out of Tuzla, Tesar, and the other airfields that we have been forced to operate out of over in Bosnia these days.

And so the decision was not based upon just total cargo movement, but the ability to through-put through various aerial ports. And it was a combination of those things that were reflected in those studies that led to the decision by that November DAB to go with an all C–17 force.

Mr. TAYLOR. Can I ask a followup?

Mr. HUNTER. Sure.

Mr. TAYLOR. If the C–17 is so much superior, why is it that people who are in the business of moving air freight are using 747's, instead of beating the doors down to buy C–17's?

General MUELLNER. Well, one, there is some interest in it, especially from some of our allies right now. But the bottom line is through-put through a particular facility, which means getting certain types of cargo in there, both oversized cargo and routine cargo.

That is the real issue. And that through-put includes ground time and things of that nature.

And as a result of that, when you include that in, that becomes the dominant factor. The term that has been used to describe that is this term called MOG, which means minimum operating ground environment. And the 747 type airplanes—and I might add, a C–5 has the same types of problems—does not do well when you look at the types of aerial ports that are available around the world that we may have to insert cargo into, Tuzla being a good example.

Mr. MONEY. So it is not only the length of the runway, the amount of equipment that it takes to unload, and all that. The C–17 was optimized for military operations. The things like I think you are referring to are longer airstrips, major airports, where loading is much more easily handled with equipment that is at those airports. And they do not have M1A1 tanks and things like that to load or unload.

Mrs. HARMAN. Mr. Taylor, would you yield just for a moment?

Mr. TAYLOR. Sure.

Mrs. HARMAN. Is it not also true that you looked at craft, at the use of commercial air freight beyond just this new NDAA option, and considered it? And what caused, at least in my impression, the C–17 to win over the others in this context is its incredible ability to land on austere airfields and turn around in a short radius, and do things like that, that none of the others can do.

General MUELLNER. That is absolutely correct. Obviously, if we look at our 50 million ton miles requirement, Civilian Reserve Airlift Force [CRAF] plays a big part in being able to deliver that. And there are a lot of those types of airplanes in the CRAF. In fact, we are trying to encourage more of those airplanes into the CRAF operation, in order to facilitate the point A to point B, where A and B are fairly large controlled airfields. But your point is very well taken.

The problem at Tuzla in my example is not the length of the runway. The problem is the taxiways, the parking spaces, the lack of space. As an example, I used to be a commander at Bittburg, Germany—a single runway. Whenever we had a C–5 come in there, we had to close down our operations, because that C–5 literally had to offload and onload just about on the runway.

And so as a result of that, this operating environment on the ground is a significant issue when you are talking about through-put through some of these aerial ports.

Mr. TAYLOR. Mr. Chairman, just for one last question.

Mr. HUNTER. Go right ahead. Let us air this one out.

Mr. TAYLOR. General, one observation I have is that it was not until the C–17 issue came within a couple of votes of just being eliminated that the planes suddenly started flying really well. It was not until we took the time to look at 747's that the price of it started falling.

How are we going to keep these guys straight in the future, if we do not look at something else? Because apparently, that is the only thing that has worked with the contractor.

General MUELLNER. Sir, clearly, competition is always good, and competition in this case helped achieve that. The threat of the NDAA helped in this case McDonnell Douglas to get their act to-

gether. Now, we also facilitated that process with some streamlining activities and a lot of quality help and what-have-you. So it was a team process that did that.

But clearly, the NDAA out there—that NDAA is still there. If downstream we run into problems in the execution of this program, we still have the ability to do that. And indeed, that was one of the comments that came out of the DAB.

Mr. HUNTER. I might tell my friend, Mr. Taylor, that this was the centerpiece of the streamlining initiative that the DOD has undertaken. And a lady named Darlene Druyan, who briefed us—I have been briefed by her several times on her programs—spearheaded this lightning-bolt initiative to drive the price down. And I have seen a lot of initiatives on streamlining that were no more than—they were real good dog-and-pony shows in front of this committee, but ultimately did not do anything. But this initiative by this leader in Ms. Druyan, Deputy Secretary for Acquisition, was tremendously successful.

And I mean she took literally phone books of mil-specs and work orders down to a few pages. She put together a team of about 60 people, hand-picked, and they went through and scrubbed this program and wire-brushed people when they felt that paperwork was more important than building aircraft; developed a good relationship with the contractor. And that really drove this program down.

And the C–17 has gone through a tremendous evolution, I think largely driven by this committee. You know, we put the NDAA in, and we gained some leverage because of that. And the C–17 does meet very important airlift requirements. There is no doubt about that.

We posited those requirements to you and said, "What are you going to do about it?" You are doing something about it. And it is a superb aircraft, and the people that make it now are doing an excellent job. And you have warranties, of course. I mean, this plane's production and the production quality are not going to fall apart once you ink a contract. You will have safeguards in the contract.

But I guess one question I might ask is this. The 5-percent savings is a real savings, in the context of the kind of money we are talking about—almost real money. It is a lot of money

Question: When the contractor came to you with this deal, did you give him a counteroffer?

General MUELLNER. Yes; I am glad you brought this up, Mr. Chairman. This is two things here. This is based on negotiated hard numbers, not estimates, as other multiyear proposals you have seen in the past are. So this is based on negotiated hard numbers. And the word is "negotiated" here. So it was not just a total acceptance.

And if I could answer Mr. Taylor's other question, the other part of his question was, how do we keep them in line now that they are doing well? And that is where the fixed-price contract comes in. So once it is fixed price, then that keeps the out-years safe in that regard, as well.

Mr. HUNTER. OK. One thing, I am reminded by staff that we were here in January still putting together the defense bill still in Congress. So this poor old band of authorizers was around, if you

had wanted to come around and talk to us about this deal you were putting together.

Mr. MONEY. Yes, sir; and General Richards and his staff came to talk with the authorizers. So we will work harder in the future to make sure that happens.

Mr. HUNTER. Mr. Saxton, did you have any followup, sir?

Mr. SAXTON. I just have an observation that I would like to make, Mr. Chairman.

Mr. HUNTER. OK.

Mr. SAXTON. Or maybe it is a question for you.

Mr. MONEY. Certainly.

Mr. SAXTON. It seems to me that this issue that we are dealing with today is tremendously important. It is a lot of money, for one thing. It is the future of our airlift, for another. But as important as it is, it is really only a fraction of the total issue involving what kind of equipment we are going to buy over the next decade or so to accomplish this airlift mission.

Now, these decisions are all based on a study that was done which General Muellner mentioned a few minutes ago. That plan is known as the Military Requirement Study Bottoms-Up Review Update—[MRS. BURU]. I am not quite sure how much I like the name.

The study itself raises some questions. The study was done based on some assumptions. The No. 1 assumption was that the CRAF fleet would be immediately available for use at any given time. The No. 2 assumption was that the reserve units would be immediately available at any given time. And the third assumption was that there would be perfect weather for the duration of the activity.

Now, all of our decisions are made based on those assumptions. or at least the Air Force's decisions are. And so that raises a question. Do we, in fact, with this buy, have the ability to do the 49 million ton miles per day which is our requirement, which is our stated requirement?

No. 2, Mr. Chairman, as the C–17 has evolved, so has its use. In Bosnia today there are 10 C–17's doing a tactical job. I do not remember that being a major part of the debate. And so we have already evolved the use of this system into a use which we, at least, on this committee did not anticipate.

No. 3, Mr. Chairman, soon after the turn of the century, the C–5 is going to start to wear out—maybe already has. It is already old, and it is already difficult to maintain. It is already expensive to fly. It has got a large crew. And so it is another issue that we need to be aware of.

No. 4, there is a classified mission which is currently part of the airlift mission, which I will not talk about, but major decisions need to be made about how we are going to do it.

No. 5, when we made the decision on the C–17, we thought we knew that there were going to be two east coast bases for the C–17, and I am not clear whether it was one or two on the west coast. But everybody's impression was that there was going to be a beddown where there would be two east coast bases for C–17's. Now there is one. And so what does that mean in terms of our mission capability, our crew ratios? All that has changed, according to my friends who are recently retired from the airlift operations.

Number next—whatever number this is—the Air Force is telling me that we do airlift with KC–10's. That prompted me to go check and see how much airlift we did with KC–10's during the buildup in Bosnia. As a matter of fact, 95 percent of the KC–10 missions that were done—95 percent—were refueling missions.

And finally, as Mr. Taylor pointed out a few minutes ago, and as I know is contemplated in the Air Force, there may still be a need for large wide-body transport in our airlift fleet, and that is a question that we need to be aware of and to search for answers to.

So my question, or my suggestion, Mr. Chairman, is, I think we ought to have a hearing, or a series of hearings, so that we can at least raise these questions, begin to develop some notion of where we are going to go with answers to this wide variety of questions; so that when we buy 80 airplanes, or 120 airplanes, we have some idea about what that means in the total lift picture.

So I guess I would just say, Mr. Chairman, I would hope that we could have a hearing or a series of hearings to discuss these issues with the Air Force. They are the experts, but we are the decision makers. And I just think it is very, very important.

Mr. HUNTER. I think my friend is one of the most eloquent advocates for airlift and for this system. And we did have a pretty extensive airlift hearing last year in which the big picture was basically painted by the Air Force with respect to the upcoming DAB decision, its implications. We discussed NDAA fairly extensively, and the airlift requirement.

One question that the gentleman posed I think, General Muellner, you might be able to answer. And that is, there has been a change in the east coast-west coast bed-down requirement. Why did that change, and is there a justification for that?

General MUELLNER. I would assume that the justification—That is not an acquisition issue, and we would be glad to take that for record. The specific bed-down locations, as you know, are made specifically by the operational community and AMC to facilitate their mission. We would be glad to get the answer back as to what the construct was for that.

The rest of the issues that were brought up were, indeed, all part of that November DAB. So I think all the information to deal with them in some detail, including a lot of analysis that did excursions around MRS. BURU, the tactical utility analysis that I mentioned earlier, is all readily available.

Mr. HUNTER. Well, let us give you the short-order question.

Additionally, Jim, what I would like to do, you know we are stacked up on hearings. That is one reason we are doing a lot of joint hearings. But we have great members on this committee and the subcommittees, and I would like to, if members are interested in it—I know there is a lot of interest. If we cannot have full-out hearings, we can have a series of briefings on all of the issues, if you will help me put them together, and maybe the gentlelady from California. And we will undertake to really get into the airlift question, because airlift and sealift are still two big deficiencies.

So maybe the base question, to summarize Mr. Saxton's concerns, is, with the program that you have, with the 120, presuming that we go ahead and do that and procure those aircraft, do you

think that we will have sufficient airlift, or do you think we have some extremely optimistic assumptions with respect to CRAF and other areas that are not realistic?

In other words, will we still have substantial airlift deficiencies?

General MUELLNER. Sir, the decisions that were made at that November DAB focused on just that issue. The package that came out of that, which is the 80 aircraft in addition to the original 40, when added to the CRAF and added to the C–5 contribution, met the minimum level that was identified, which was up around this 50 million ton miles.

There was still risk associated with that, and some of the excursions attempted to address that in the very issues that were brought out by Mr. Saxton in the areas of tactical applications and so on. But those were all pretty well at least understood, and tried to be dealt with in that decision that Dr. Kaminski and the senior OSD staff made.

Mr. HUNTER. OK. Before we leave that, we spent a lot of time on C–17 because it is extremely important right now. Do any other members have any questions they would like to ask on this? Mr. Longley.

Mr. LONGLEY. Thank you, Mr. Chairman. I do not have a question, but I just would like to pick up on the discussion and reinforce the comments that have been made by Mr. Saxton, yourself, and Mrs. Harman.

I think that the whole issue of procurement reform, particularly the possibility that we can move to multiyear systems, has the potential of saving the taxpayer billions and billions of dollars, and generating the kind of stability that we need in the industrial base to allow for sounder, longer term, more stable purchasing decisions that will not only save the taxpayer billions but introduce significant stabilities into the private sector, particularly those that are providing these types of systems.

And I would suggest that what has happened on the C–17 could very well serve as a model for how we approach these issues across the board. I cannot think of any higher priority, given the tremendous pressure that still exists on defense budgets.

Thank you, Mr. Chairman.

Mrs. HARMAN. Mr. Chairman.

Mr. HUNTER. Yes, Mrs. Harman.

Mrs. HARMAN. Can I ask just a couple more questions on the C–17?

Mr. HUNTER. Sure. Go right ahead.

Mrs. HARMAN. First of all, I loved your observations about Darlene Druyan. It is obviously a great pleasure for me to hear that senior women in the Defense Department are doing so well. That is one point. Second——

Mr. HUNTER. She may be the best in defense reform that we have got.

Mrs. HARMAN. There you go.

Mr. HUNTER. Absolutely.

Mrs. HARMAN. The second point is, and several of us have been saying this, I really think this committee saved the C–17 program, on a bipartisan basis, working closely together. And I think it is worth noting that former Chairman Ron Dellums was very helpful,

even though he was not an enthusiastic supporter, because he arranged for us to have a hearing after we had marked up our bill a couple of years ago, and have John Deutsch come back from DOD to talk about the C–17.

And the Defense Department made a much better presentation at that point, and we were able to win on the House floor a change in the Defense authorization bill, and it has just gone straight up from there. So it pleases me that there are so many well-informed people on this committee who are still working to make this program better.

But the third point I wanted to make on your notion that maybe we would do a briefing or something on strategic lift is that in the last Congress this committee, or many members of it, flew down to Charleston to look at our strategic airlift on the ground and see the various options that are already there. And this was at the early stages. I think it was even before we had authorized the C–17 program. And I just want to suggest that it may be useful to do again.

And a final note to Mr. Saxton. I do not know how the decision was made about one facility on the east coast, but I certainly know that New Jersey has wonderful facilities. And I am personally disappointed that that was not accommodated.

Mr. MONEY. We will be glad to work, Mr. Chairman, with briefings, whatever, with the authorizers, however you would like us to come back and do that.

Mr. HUNTER. Let us do it. It is probably going to involve some early mornings or some late nights, because we are stacked up pretty heavily. But I think there is member interest, and let us try to do that, Mr. Money.

Now, I know you have a few other things to tell us.

Mr. MONEY. Yes, we do.

Mr. HUNTER. But we needed to go through the C–17. It is very important.

Mr. MONEY. That is why we put it on first. And again, we are here to give you any information you would like on any of this.

And if I could, then, maybe the next step is to waltz through some more points here that we have anticipated you would have some questions about.

Mr. HUNTER. Go right ahead.

Mr. MONEY. OK.

General MUELLNER. Sir, the next area is also in this mobility, and of course it is the one that emphasizes the tactical portion of the airlift. That is primarily our 130 fleet. As I mentioned earlier, our focus on this in the near years. And by near years, I am talking about prior to about the 2002 or 2003 timeframe where our current force of E's and H's primarily start to age out. It is to use a very small rate buy of C–130J's as we prove that airplane for this role, in upgrading our special mission aircraft, airborne command and control, Vol and Sols and things of that nature that perform special missions.

And again, initially, we had been trying to procure that at about six a year. We have started out slow at what was building up to two a year. This particular year, in fact, because of top-line constraints, we had to drive that down to a single aircraft, and those

aircraft will go into validating the C–130J as a mission replacement.

Sir, what I would like to do is to move out of the global mobility area if I could, and move into the air superiority area. The primary platforms that make up the Air Force's role to the Joint Force Command, or our contribution here, is currently the F–15 aircraft which is performing that mission and has performed it well for 20-plus years.

The F–22, of course, is the aircraft that will replace that. That particular aircraft is currently in engineering, manufacture, and development, and I will talk a little bit more about that.

One additional platform that is shown here that is indeed important in the out-years in this role is the airborne laser program. And I will touch very briefly on that, because I know that has been an item of interest. On the weapons side, we have a mix of primarily radar missiles, which the Advanced Medium Range Air-to-Air Missile [AMRAAM] program is executing out very, very well, I might add—again, a program that in the past had had some difficulties, but in execution through some streamlining and some hard effort, and competition, I might add, the price has come down dramatically on that. And the missile is performing extremely well in the field. The A–9X will be our replacement on the infrared or short-range missile, and that is a joint program with the Navy.

Let me talk, if I could, about the F–22. The F–22 is a radically different approach to dealing with the air superiority problem; in that for the first time we are really going to introduce signature reduction in a significant way to enhancing our ability, if you will, to get not only the first shot, but to do that by getting the first look; by making it difficult for the enemy to see us, and at the same facilitate our being able to bring our weapons to bear.

The key characteristics of that platform are, of course, its signature reduction, its ability to operate at high speeds, supersonic speeds, for extended periods, which reduces the ground and airborne reaction time of our adversary, plus integrated avionics. And I cannot overstate the importance of these integrated avionics to bring both offboard and the multiple onboard sources to facilitate the process for the crew member.

Additionally, this airplane, of course, will have an ability to deliver weapons, 2,000-pound accurate weapons in the JDM family, which is an Inertial Navigation System-Global Positioning System [INS–GPS] weapon which I will talk about a little bit later.

Now, I would like to address a couple of issues that recurringly come up on the F–22. One of them is relative to the unit cost. We need to go through a set of definitions, unfortunately, on what kind of costs you are talking about.

The fly-away cost—and this is in constant year 1996 dollars—for the aircraft is $71 million. And that includes the aircraft, the software, and change orders, and things of that nature. That is what commonly would be called the sticker price, if you will.

If you include in there spares and factory support and the other things that are associated with it, you then move up to what is commonly called unit procurement cost. So we move from 71.2 up to this 87.1 number. Another number that is referred to quite frequently is the program acquisition unit cost. This is if you take the

total amount of money that is being spent on the program, the Demonstration-Validation (dem- al) program that proceeded our current engineering development effort, that Engineering & Manufacturing (EMD) effort—take the total cost of the program and just divide by the number of airplanes. With that, you end up with a price tag of $136 million. This is not the recurring cost. That is just the total bill divided by the number of airplanes.

If you then take those out into then-year dollars, that is how you end up with a number that has been used in the press, which is a program unit acquisition cost in then-year dollars, taking you out to about $160 million.

Mr. HUNTER. That is the sticker shock.

General MUELLNER. That is the sticker shock. That is not a recurring cost, though.

Mr. HUNTER. What is the counterpart to that cost for an F–15, approximately?

General MUELLNER. I will try to answer your question, but I cannot give you an absolute number, because we do not know, because I have asked that question. The counterpart to this $71 million number is $53 million.

Mr. HUNTER. OK.

General MUELLNER. The reason is that——

Mr. HUNTER. Could you presume that the program, the total program cost, nonrecurring, is probably in the same proportion?

General MUELLNER. It is going to take it out in the same area, yes, sir.

Mr. HUNTER. OK. So if you just used that proportion, it is 53 to 71, so you have got about—What? About a 40-percent increase. And if you took that, so you would say the F–15 total program cost might be around $120 million a bird?

General MUELLNER. Again, that scaling is the only thing we can do. And the reason for that is, the F–22 unit costs include everything. They include the engines, the electronic suites, and all those. In the F–15 program—and I grew up on the early days of the F–15—those were all separate programs. So we have had a difficult time running that audit, unfortunately, sir.

Mr. HUNTER. OK. And I might add to my colleagues, since we are going through these things unit by unit and system by system, if you have a question or a comment on a system, just go ahead and bring it up, and we will run this informally. So that we can address the issues as they arise.

Mrs. HARMAN. Mr. Chairman.

Mr. HUNTER. Go right ahead. Yes.

Mrs. HARMAN. On that point, it is really not on the F–22, but it is on this notion of fly-away and then this enormous 40-percent add-on by Department of Defense (DOD). I have heard you say in the past—and I totally agree—that we ought to review that add-on by DOD. I know it is a complex formula, but in light of acquisition reform, which the Air Force has done better than any other service, I think it is very important to see whether some of that stuff could be reduced, or we could set up a discipline where we begin to reduce it. Because that is what makes our procurement so expensive.

Mr. MONEY. Yes. You mentioned Darlene Druyan. She would be here today, by the way, but she is down representing General Muellner and I down at the roll-out of Joint Surveillance Target Attack Redar System [JSTARS]. But exactly the next area that we are looking at is what to do in the logistics and support area, the Operation and Maintence (OSM) & area. And we have just begun to start scratching that, if you will.

And I agree wholeheartedly, there is an immense amount of effort. I believe there is still a lot of effort and gains to be realized in the acquisition side, but clearly the sustainment area is absolutely ripe for lots of reform. And part of privatization and so forth will be addressing that.

Mr. BATEMAN. Mr. Chairman.

Mr. HUNTER. Yes, Mr. Bateman.

Mr. BATEMAN. In coming to the multiyear procurement decision for the C–17, was any analysis done as to what the savings might be in other programs if you went to a more robust multiyear procurement?

Mr. MONEY. There are several examples that we will be bringing forth to you over the next few years in that regard, Mr. Bateman. We do not have a hard, firm additional proposal for you today. But as I mentioned in the opening remarks, to me the single greatest gain that we can make in program execution and keeping the cost down is, in fact, in funding stability. And my answer to how to get most of that funding stability will be eventually coming back into multiyear funding.

Mr. BATEMAN. Well, what prompts me to ask the question is that as a part of our responsibility we have to look at the whole panoply of the Department of Defense requirements. And one area that comes immediately to mind is the request, the need, that has been expressed by the Marines for the B–22 and a more robust buy, and the economies that could be effected if they were to be permitted to do that, as well as their operational requirements.

So we cannot measure C–17's in a vaccum, without some consideration as to are there other programs where the savings potential is as great or greater and where the operational requirements are perhaps as compelling? I just do not feel comfortable with being put in a position where we do not have the opportunity to make those kinds of evaluations. And apparently, they are not evaluations that have been thought through fully at the Department of Defense level.

Mr. MONEY. The VC–22, as you mentioned, has been—the lead service there is the Navy. I do not believe they are far enough along yet as we were with the C–17 in bringing that forth. I will be glad to pass that information along to Mr. Douglas, the service acquisition executive for that program, though.

Mr. BATEMAN. Well, that would be very nice. But the concern is that perhaps this becomes a preemptive strike on other things that might be done, especially if there is no anticipation of any increase in the Department of Defense top line through the course of this multiyear procurement.

Mr. HUNTER. Just on that point, Mr. Money, because that is a big constraint that concerns us all. I still have General

Shalikashvili's urging his own President that you go to $60 billion in acquisition in modernization.

Did you press for a bigger top line, personally? I know that you think that we are not spending enough on modernization.

Mr. MONEY. Modernization is key, as the chief has said, and so forth. Personally, I have not pushed—I have only been on the job 49 days, so I have not pushed on anything.

Mr. HUNTER. Well, we will try not to get you fired already. OK. OK, I got you.

Mr. MONEY. OK. Thank you.

Mr. HUNTER. Go right ahead, General.

General MUELLNER. Thank you.

Mr. CHAMBLISS. Mr. Chairman.

Mr. HUNTER. Go right ahead, Saxby.

Mr. CHAMBLISS. While we are on the F–22, I am assuming, since we spent so much time here with C–17 and F–22 in your presentation, you do consider, the Air Force considers these two pieces of equipment critical to our Two Major Regional Conflict scenario?

General MUELLNER. It is not only critical to our two MRC scenario, it is critical to our ability to prosecute campaigns in that threat arena across the board, clearly, in the case of the F–22.

Mr. CHAMBLISS. OK. Now, we are talking about numbers here on the F–22, but while we are on that, there has been some concern from our colleagues in the other body about the concurrency issue on the F–22. While we are talking about it, would you take 1 minute just to explain where we are there?

General MUELLNER. I will be glad to do that. In fact, I happen to have a chart here that is going to help me do that.

Mr. CHAMBLISS. I see you getting to that now.

General MUELLNER. That is right. Again, this has been an issue that has been discussed. And let me just describe what concurrency means in this case.

Concurrency means, if you will, the overlap between test activities, whether they be DT or OT—operational test, developmental test—and production decisions, in this case, low-rate initial production decisions. And this is what the program reflects.

The pros, as I swing in this way with higher concurrency, are that, one, it normally reduces production dollars because the contractor is able to ramp-up and maintain some stability, especially in the vendor base, which is important. They are able, therefore, to make the aircraft—in this case, the F–22—available earlier. And you can get the technology cycle down, because the entire cycle is much shorter so you have current technology out in the field earlier.

The bad part about that is you run the risk of finding something in here that is wrong as you do your test, that you then have to go back and fix and retrofit. And, obviously, there are costs associated with that.

On the other side of this scale is the fact that if I reduce concurrency, I make this a long serial process. The pro to that is, you do not have this risk of retrofit, so there are some dollar savings there. But the negative side of it is, you have much higher production dollars. And the end result is, the contractor ramps-up to do your development activity, he brings his vendor base in to

produce your test aircraft. And then you have to ramp-down, and those vendors go away.

One of the big concerns that we have is what we now call increased technology obsolescence risk, or what we are calling our parts out of production; where, as a result of the long delay, you have to run the balance that those vendors that were there to support your test and development activity have now moved in other agendas and are not there to produce your production. So there is a clear balancing activity you have to make here.

As a result of this concern being raised in the past, we had the Defense Science Board go out and assess the F–22 program. Their assessment, as reflected here and on your chart, is that it is not any more concurrent than other programs of its type—the F–15, F–16 programs—and in fact, in a lot of respects it is much more conservative than those.

And so, as a result of that, we believe that in the case of the F–22 program, the degree of concurrency, that balance is in about the right frame.

Mr. MONEY. Let me just add to that one number that really strikes me. We will have delivered only three aircraft when the testing, Development test and Evaluation [DT&E] test, is over. So it is far from concurrent. It is about as un-concurrent as you can get.

Mr. CHAMBLISS. I think there has been some misunderstanding about what that number was.

Mr. MONEY. Yes, sir.

Mr. GEREN. Mr. Chairman.

Mr. HUNTER. Go ahead, sir.

Mr. GEREN. Just a question. I am not sure how I understand, or do not know what all factors go into calculating cost savings by increasing the rate of production and bringing a system onstream more quickly. And I would just like to ask a general question.

When we talk about the C–17, buying more and buying them sooner; the F–22, moving it up; B–22, moving it up—Do you all include in the savings the expenses that would be avoided by being able to retire older aircraft that are in the more expensive end of their life cycle, like bringing the F–22 on and being able to retire some of the older F–15's that are in the more expensive end of their life cycle, the B–22's, and being able to retire the old helicopters, et cetera? Is that part of your calculations in determining cost savings?

General MUELLNER. Yes, sir; the life-cycle cost issue, which you talk about when you have a sustained force out there operating—in this case, the F–15, for instance—when the decisions are made as to how to phase in new activities, new development, new acquisition, those are clearly parts.

Because in reality, when you look at, in this case, the service top line, clearly, we are continuing to pay that F–15 Operation Maintenance bill while we are doing this activity. So it is, indeed, a balancing act. Clearly, a big part of the F–22 and some of the key design parameters on the F–22 are focused with not only the life cycle cost issues, because that is true, but also the deployability issues in order to make the aircraft more deployable and reduce the

airlift tail necessary to support it. That is all part of those decisions points.

Mr. GEREN. Just in using the F–22, as an example, you have the $70 million initial cost, and then it gets up to $110 million when you add in everything else. I would think that a good bit of that difference between 70 and 110, there would be costs that are going to be avoided because that F–22 is going to allow you to retire an older F–15, and part of those life-cycle costs that are the life-cycle costs that are avoided with that F–15 is taken into consideration when you calculate the savings of bringing on the F–22.

General MUELLNER. They are indeed calculated as part of our standard assessment criteria for doing that. They are not reflected in these numbers obviously. This is an F–22 unique set of numbers you saw on those previous charts. So it is not by comparison to an F–15 where O&S is considered. But in the out-years when you indeed have that tradeoff, that is a consideration.

Again, I would offer in the case of the F–22 that our production rates and what have you are more driven by how quickly we can bring it on, balancing this concurrency issue that you have talked about and the available TOA in that timeframe.

But it is clearly a factor, as you said, sir.

Mr. GEREN. So to really understand the cost of the F–22, you need to also take into consideration the fact that it allows you to retire an older expensive F–15, if you are really going to—it is the incremental cost to the Service that is important for us to understand.

General MUELLNER. Sir, there is an additional factor which I think we should not forget, and that is that one of the main reasons why the F–22 came on—and this is going to be especially important when we get into some of the other systems we will talk about—is the threat environment is changing.

And as a result of that, if we are going to employ the F–22, for instance, to cross into enemy lines and be able to not only dominate the air, but also to do that early in the battle, we cannot do that in the future with the F–15. We could not even do that initially on day one in Desert Storm with the F–15 because of the ground defenses.

Some of the key characteristics that are captured in the F–22 program reflect its ability to go in and operate in a hostile ground defense environment also while it is garnering dominance of the air.

So we have to throw into that equation a third factor, and that is, is the operational relevance at a given point in time of the weapons system.

Mr. GEREN. Thank you, general. Thank you, Mr. Chairman.

Mr. HUNTER. Sure. And I might just say to our members as they come in, if you have a question, you just go right ahead and ask it. We are running an informal operation here, so that we can address these issues as we go through the systems.

And Mr. Tiahrt, the distinguished gentleman from Kansas, has a question.

Mr. TIAHRT. With your high concurrency—and I think it is probably as high a degree of concurrency as any program that is going on now and for some time; it looks that way, anyway, from your

chart—there is a very strict need to establish a baseline, so that you do not have as part of your cons the increased retrofit risk.

Have you established a baseline now? Is the program manager on your side and the user satisfied with the baseline you have established, because retrofit costs come from changing this—having a moving baseline also drives the cost?

I am concerned that you have established a good, solid baseline for the product.

General MUELLNER. I think the answer to that is yes. And "baseline" to me—and I would probably not agree with your opening statement, the degree of concurrency being as high or higher. As I mentioned earlier from the Defense Science Board standpoint, that is not reflected by consideration against things like F–15's, 16's, and some other fighters. It is certainly a concern.

Mr. MONEY. Let me interrupt, Congressman. The point, I think—the one number that really strikes me on the concurrency issue is, we will have delivered only three aircraft when DT&E is concluded.

Mr. TIAHRT. All right. I was thinking, you are in your LRP, or low-rate production, while you have DT&E going on. So I thought you——

General MUELLNER. Yes, sir.

Mr. TIAHRT. To me, that looks like a lot of concurrency because you always get something coming out of your test program that you want to incorporate in the production.

Mr. MONEY. Yes, sir. There are studies that say roughly in the first quarter, 25 to 27 percent of the test program will have 90 percent of the things we need to fix.

But the thing that really strikes me on the concurrency issue is, again we will only have delivered three aircraft when the DT&E test is completed.

Mr. TIAHRT. So you are saying that your retrofit would not be very expensive, then, if there are——

Mr. MONEY. That is true.

Mr. TIAHRT. OK.

General MUELLNER. And to go back to your baseline issue, "baseline," to me, is a forcing function of the requirements, if you will, that the war fighter brings forward. Those requirements have been very stable. In fact, if anything, they have changed as a result of the war fighter working with the developer to try to take cost out of the system. And so, if anything, they have facilitated the process.

Clearly, if you have requirements where the war fighter is not doing that, you can indeed drive a program unstable.

Mr. TIAHRT. Yes. I just have seen programs grow because there was—the baseline kept moving.

General MUELLNER. Yes, sir. We have some examples of that unfortunately.

Mr. TIAHRT. All right. Thank you.

General MUELLNER. Yes, sir.

OK, let me talk just briefly about the——

Mr. HUNTER. Let me—just before you finish the F–22—and you might have mentioned it while I was getting some coffee—but you mentioned there are only going to be three production aircraft dropped off the line by the time the tests are complete. But you

will have purchased about 75 aircraft, and they will be your—your production line will be fixed.

So there is some risk. If you find something that——

Mr. MONEY. You are absolutely right. There will be 70 aircraft that will be in various stages of production.

Mr. HUNTER. Yes. So this is not an easy fix. If you find defects, it is going to cost some bucks.

Mr. MONEY. There will be some retrofitting if, in fact, we need to do that. But we also believe that, based on several studies and past experience, that 25 percent into the DT&E phase, we will have realized about 70 to 80 percent of the fixes that need to be made.

So there is a trade there, obviously, and again a risk. If we go totally the other way, we are going to add a significant amount of money to the program, besides all the obsolescence and so forth that the general talked about.

General MUELLNER. Before we leave the F–22, I think one issue that we really could solicit your help on is the issue of live-fire test. As you know, I think that has been an issue going on for the last several years. At the direction of the Congress several years ago, a year and a half ago, we went to the National Research Council, had them evaluate, and their recommendation back to us and to you all is that we seek a waiver for doing the full-item live-fire testing.

The necessary support packages for that have been over here for some time, and we really would like to try to get some closure on soliciting that waiver. That is important for us from the standpoint of programmatic impact in the out-years.

Mr. HUNTER. OK. Now does the Secretary of Defense [SECDEF] have the authority to grant one, to grant a waiver?

General MUELLNER. Sir, I believe that requires approval from you all, and there are packages floating, I think, within your staff and also within the Senate side.

Mr. HUNTER. OK. Well, we will try to work through that and see if we can help out.

General MUELLNER. We would appreciate that.

Mr. HUNTER. Go right ahead. And thanks. And again, to all the members, as we go through this, just go ahead. When you have got a question,ask it.

General MUELLNER. We are really upbeat on the ability of the airborne laser to contribute significantly in the theater missile defense role. And the primary reason for his is, is that, one, it is a standoff platform; two, it deals with it in the early phases of launch. So just after launch, it deals with it.

As a result of that, if there are chemical or other weapons of mass destruction, they fall on the enemy's head rather than ours.

There are several key technologies associated with this, obviously, that are risk areas to us. One is the necessary optics to end up with a focused beam that you can project at long ranges, hundreds of kilometers; the other one is the problem of creating adequate laser energy; and then the third one is the integration of these things into an airborne platform.

We have had remarkable successes in both the laser side and also in the case of the adaptive optics. If any of you have been to

most of the observatories around the country these days, you know that the adaptive optics that were generated as a result of Phillips Lab activities down at Kirkland indeed significantly enhanced the performance of most of those observatories. And those adaptive optics are indeed what give us great confidence in this particular program.

Now this program is moving down toward a demonstration activity just about the turn of the century. We will have two contractor teams that are now out there competing. The airplane will be a 747–400 version aircraft, and these two teams will each produce a flying demonstrator that will have airborne laser capability and will be a residual capability as we go into the production side of it.

The end goal is to have a single force of about seven of these aircraft that would provide you theater capability to deal with the boost phase.

Mr. BATEMAN. Is the R&D program fully funded for fiscal year 1997?

General MUELLNER. That is correct.

Mr. BATEMAN. Would additional funds accelerate the program?

General MUELLNER. I will have to take that question, but my immediate answer is, this is an event-driven program, and probably the answer is no. I will get you the specific answer.

Mr. BATEMAN. Well, I would like assurance, because it seems to me that it addresses a very high priority area.

General MUELLNER. Sir, we could not agree more.

Mr. BATEMAN. Where we are clearly deficient. And if it can be accelerated, we certainly ought to look at every opportunity of doing so.

General MUELLNER. Sir, we will certainly take that question and get you a specific answer back.

Mr. HUNTER. I might say, we are going to have a vote. But I will tell you what. Why do you not continue to give this—to brief, and let us go ahead and continue the hearing through the vote?

Maybe, Mr. Bateman, if you could take the chair, I will run out and vote and come back in just a couple minutes here. And members just go right ahead and ask questions as we go through these systems.

Mr. TIAHRT. Mr. Chairman, is it okay that we submit questions later on for the record?

Mr. HUNTER. Absolutely. And our members who want to submit some questions for the record, General——

General MUELLNER. Absolutely, sir.

Mr. HUNTER [continuing]. And if you could get them back, and Mr. Money, very quickly, because we are on an accelerated markup schedule here, we would appreciate it.

I am going to run and vote. I will be right back.

Ms. HARMAN. Mr. Chairman, as you are walking out the door, I just wanted to commend you on the record for the way you are holding this hearing. It is so much more productive to have everyone pile on as we get issue by issue and to have the bipartisan and serious conversation that we are having in this room.

So I commend you, and I wish the full committee would conduct hearings like this.

Mr. HUNTER. Well, I thank the gentlelady, and it is because we do have a great bipartisan team here, really interested in what the country is producing here for our service people.

So thank you. And I will be right back.

General MUELLNER. I am going to talk now about our precision weapons employment—air-to-ground read that—capability. I already mentioned the F–22 can deliver precision 1000-pound weapons, Joint Direct Attack Munitions (JDAM) type weapons.

I will talk about a number of these major programs. But clearly the workhorse of our fleet right now is the F–16 aircraft. It is the largest part of our force structure, and I will talk about it and also its replacement.

Another key element is the F–15E. This is primarily used in a precision strike role. It is an improved version, as many of you know, to the old F–15C airplane that grew out of that.

The F–111F is moving out of the force structure. Clearly, the 117 is an important element right now for an LO first-day-of-the-war capability, and it will persist throughout the planning cycle as a key element.

The A–10 we use in a close support role. It will continue for quite some time. It does a reasonably good job in that role. But I will talk about it in the out-years where our intent is to replace that.

And in a strategic attack or as the bomber force, if you will, we have the B–1B, the B–2, and the B–52. I will specifically talk about both the B–1B and the B–2's and what programs we have underway as far as modernizing that particular capability.

Let me first talk about the F–15E. As you know, we completed that buy several years ago. Our efforts have been to buy a limited number, 18 attrition aircraft. We had 6 last year. It turns out this year, we are only going to be able to buy two of those aircraft. But the intent is to try to buy these aircraft to maintain our force structure in the out-years.

As you saw, this aircraft will persist for quite some time as an important part of the inventory.

Some other things that we are looking to try to do this year, which are important, is to fill out the electronic warfare protection suite on the aircraft. This particular system allows us to deal with the low-band threats, and what that really means is the older surface-to-air missiles, which have continued to persist in an awful lot of the Third World inventories, things like the SA–2, for instance.

We have a lot of capability that we know of, how to defeat those missiles. But we have not had the system on the airplane to do that, and that is what this Band 1.5 solution does.

And then finally we want to provide connectivity for these aircraft, and you are going to see this as a repeating theme with the entire battle management process. And you can read that as this Link–16, Tactical Automated Data Information Link [TADIL–J] as it is called, or the MIDS Program, which is a joint program that is being run by the Navy.

Mr. BATEMAN [presiding]. General?

General MUELLNER. Please.

Mr. BATEMAN. If you had more money in fiscal year 1997, would it be better expended acquiring more than two F–15E's or in the other upgrades of the existing fleet?

Mr. MONEY. The highest priority from General Fogelman is J–STARS immediately followed by F–15E's.

Mr. BATEMAN. The procurement of the plane or of the upgrade of the existing F–15's.

General MUELLNER. Of the aircraft, sir.

Mr. MONEY. Of the aircraft.

General MUELLNER. Yes, sir.

Mr. MONEY. So if there was additional funds, that is where we would ask that they be placed.

General MUELLNER. And, sir; I think we have hopefully provided you a copy of that upgrade list, and you will see these other things on that list.

As I mentioned the F–16 is the truck of the force. I might add for these of you who will not recognize it, this is a GBU–15, which is a glide bomb. It is not quite as large as it appears relative to the airplane, but it is a large weapon. It was the one that was used to take out the oil manifolds over in Desert Storm.

But again this requirement here is to try to sustain this force until we can replace it in the out-years, and I am going to talk about that on the next chart. And so we are looking to try to get a sustainment of about six aircraft per year to do that.

And then finally again, connectivity is really an important issue for us, and that is Link-16 or the Multinational Information Distribution System [MIDS], which is just a specific system that provides that.

Now what I would like to move into now is the system that will replace the F–16 in the Air Force force structure, and that is a program called the Joint Strike Fighter, which is the output product, if you will, of the Joint Advanced Strike Technology Program. This was a joint Service program that was put together as a result of the Bottom-Up Review when each of the services had modernization efforts which in the aggregate were just unaffordable.

But clearly all the services had requirements in order to be able to replace aging force structure and force structure that was not going to be able to perform its role in the out-years' threat environment.

The key requirements of this—and on your charts, you see the offerings from the three competitive teams that are currently involved in this competition. It is indeed a competition. In fact, today the request for proposal will go out for the next phase, which I will talk about just briefly. And those three teams are Boeing, Lockheed-Martin, and then a team formed of Mcdonnell-Douglas, Northrop-Grumman, and British Aerospace [BAE].

The key focus of that is on affordability, being able to replace these aircraft with affordable replacements, yet those that can satisfy the mission. The main mission areas of improvement that are needed are improved survivability on the 2005, 2010, 2015 battlefield; improved range; and then a significant reduction in logistics footprint to drive down the O&S costs.

And interesting and, I think, key part of this program is that it is indeed a tri-service solution that results from this. It is not a singular aircraft that comes out of it, but it is a tri-service solution. And in all honesty, that is incorrect in that the Royal Navy is also part of this program right now, and the product that comes out to

support the Marine Corps will also support the Royal Navy, and they have come to the table with $200 million for this next phase of the program.

The key element of this is that you can build a family of airplanes that will meet the three services' needs with a high degree of commonality——

Mr. BATEMAN. Gentlemen, if you would——

Ms. HARMAN. Please?

Mr. BATEMAN [continuing]. Suspend? Well, Mr. Dornan, would you——

Mr. DORNAN. I have not voted.

Mr. BATEMAN. Oh, you have not voted?

We are going to have to suspend in view of the fact that we only have about 6 minutes left on the vote. We will resume as quickly as someone can return.

General MUELLNER. All right, sir.

[Recess.]

Mr. HUNTER [presiding]. Go right ahead.

General MUELLNER. All right, sir.

Sir, we picked up—we are talking about the Joint Strike Fighter Program. I was commenting on the fact that this program does not produce a singular aircraft design, but produces one that has commonality between those that meet the needs of not only the Air Force, but also the Navy and the Marine Corps in this particular case and the Royal Navy, who is buying a version similar to what the Marine Corps is buying.

The key benefit of this is that the total program costs then are split between the two Departments—in this case, the Department of the Air Force and the Department of the Navy. And as a result of that, our share of the EMD costs is less, considerably less, than that of a singular program.

There is also a significant benefit overall to the Department in that because of the high degree of commonality between the variance of the aircraft, the total cost structure for the program comes down considerably.

Sir, if I could move off that, if there are no questions on that, I will go to the B–1 aircraft. The B–1 is going to go through a series of upgrades. They are categorized under the conventional munitions upgrade program, which in reality, though, includes more than munitions.

The two key components shown here are indeed the fielding of conventional munitions on the aircraft, some additional improvements that occur as part of that to further improve their reliability and maintainability, and then a staged defensive system upgrade to give it more autonomous capability to survive the threat in the out-years.

We did something rather dramatic in this program, and again a program that in the past we have had a great deal of difficulty with. One of the reasons why we had difficulty with it is the Government was the integrator for an awful number of disparate activities in this program, and to be honest with you, we did not do a very good job of it.

As a result of that, we went to a single contractor, in this case Rockwell, who is indeed the integrator for all of these activities.

The program is moving along. We are getting conventional capability on the aircraft in the near term. We will have the ability to deploy and employ CBU's, cluster bombs, this year in addition to the hard bombs it can carry. And then we will be moving into the capability to employ what is called the B–1B Virtual Umbilical Demonstrator (B–VUD), which is a virtual upgrade that the committees over here on the Hill helped us with. This is an accurate 500-pound weapon.

So we are well down the path of giving good conventional capability. And I might add, while we are doing that, we have been able to preserve its key role in the nuclear regeneration process, because it is still a key contributor to Strategic Command [STRATCOM] in that—or I mean,—yeah, STRATCOM in that role.

Of course, the B–2 Program is certainly a program of interest and certainly one that gets a lot of visibility these days. I can tell you that the aircraft deliveries are continuing at a good rate.

We are fielding those in multiple blocks, as you know, of capability. Our first Block 20 aircraft, which is the second block of aircraft, is actually in acceptance test right now and is doing quite well and will be delivered within the next 6 weeks.

Our first airplane that was a Block 10 has now gone back into the Block 30 retrofit process. The timeline here associated with this, of course, is to have all those aircraft up in the full Block 30 configuration by about the turn of the century timeframe.

The decision has made just recently, as you know, to take the additional resources that were put in the budget and to focus those on taking the one remaining test aircraft, AV–1, which was not going to be put into an operational configuration, and operationalize that. So that will effectively give us a 21st aircraft, if you will.

Mr. HUNTER. When was that officially announced? We saw all of the preliminary announcements.

General MUELLNER. That was officially announced yesterday, sir.

Mr. HUNTER. Who made that announcement?

Mr. MONEY. I believe the DOD did yesterday about 1 o'clock.

General MUELLNER. It was about 1:30. The three participants were Mrs. Julian; General Eberhardt, who was my counterpart on the operations side for the part of that——

Mr. HUNTER. And you think we will—this will—the monies that we have in there will bring AV–1 to full capability, Block 30 capability?

General MUELLNER. Sir, we are going to press the test, because what we are in the process of doing right now is negotiating a firm fixed-price contract with Northrop in order to accomplish that.

Mr. HUNTER. What will that—I mean, you have looked at this, I know, in some detail. Do you think this will keep the vendor base alive also?

I mean, obviously in some areas it will not, because you are not—you are taking an existing aircraft and you are giving it warfighting capability, but you are not building a new aircraft.

Mr. MONEY. That is true. This aircraft will be held for training and attrition reserve, so it is not building anything. It is outfitting, re-outfitting, re-equipping the original test aircraft.

Mr. HUNTER. I understand, yes. But have you taken a look at whether or not this will keep the total B–2 base warm?

Mr. MONEY. It will not.

General MUELLNER. It will not. And I might add——

Mr. HUNTER. What is the contractor's response to that, I mean, because they have been interested obviously in keeping the base warm, and a number of us have also, I might add.

General MUELLNER. Sir, I think the answer to that is, if you look at the aggregate base, this will help a lot from the standpoint of Northrop.

Where you get into trouble is with specific contractors who are vendors who provide the radar or some other box on this. Obviously the additional buy associated with this is a rather minimal effort.

So we were going to have startup costs associated with them if you go back to a major production activity anyway. And this activity will not do that. It will have some incremental effect at sustaining it, but it will not keep it going for an extended period.

Mr. HUNTER. OK.

Mr. MONEY. If your question is centered around the industrial base for Stealth aircraft with the other aircraft ongoing, we do not believe we are in a singular—a single-point failure mode here. We will have still enough bases out there to supply the Stealth aircraft needed over the future.

Mr. HUNTER. OK. Thank you. Go ahead.

General MUELLNER. Sir, I would like to move into the weapons area, the teeth, if you will, for these aircraft platforms.

On the left side of your charts, there is a fairly heavy listing of what weapons we normally and routinely employ.

As you move to the right, you basically see somewhat of a net-down strategy and a modernization strategy. We have adequate weapons right now to go deal with our 2–MRC scenario, but this indeed gives us the ability to really use precision employment to its fullest.

The key weapons programs—and I will talk about each of these in a little bit of detail—are indeed the joint direct attack munition; the Joint Air-to-Surface Standoff Missile [JASSM], which is the follow-on to T–SAM, a tactical air-to-surface missile, survivable missile; the WCMD, which stands for the wind-corrected munitions dispenser; this is again an inertially-aided weapon to give us improved accuracy in operating off the bomber force; and then finally a joint program with the Navy, which is the joint standoff weapon.

Let me first talk about J–DAM, the joint direct attack munition. This program is, I think, exemplary in that it captures all of the acquisition reform, acquisition streamlining activities that have occurred to date. It is a program that even in its most optimistic sense, the cost estimates for it were, at the beginning at the program, that the unit cost was going to be about $42,000 a round. This was a case where we went in with the lightning bolts and a lot of the other streamlining——

Mr. HUNTER. That is Darlene Julian.

General MUELLNER. You are absolutely right.

Mr. HUNTER. OK.

General MUELLNER. A lot of the pilot program activities that you all——

Mr. HUNTER. We want to put her on the White House travel office. [Laughter.]

Mr. HUNTER. I did not mean to—Mr. Dellums always gets after me when I mention that, but you have got to have a little humor in this business. [Laughter.]

General MUELLNER. Well, she is—as was pointed out earlier the lightning bolts really have stirred up the community out there and have done a superb job.

But what is interesting, through competition, through the application of streamlining, the average unit cost for these weapons, rather than being $42,000 a round, actually are coming at $14,000 a round for our 40,000th round. And by the way, we are buying upwards of 80,000 of these. It is going to be our dominant weapon in the future.

A key part of that, even the first weapon off of the production line is only $18,000, so the learning curve is still very, very flat.

A lot of money—and again, this is another example of what streamlining does for you, it saves $2.6 billion.

Sensor-fused weapon is another key weapon in our inventory. It was not listed on the right side of the previous chart because it is really the innards, the inside bomblets, if you will, of several of the weapons that were shown as dispensers on the right.

This has gone through full testing. It will enter rate production this year. This is primarily an anti-armor, anti-mobile-force type weapon. It is a smart weapon that has smart end-game munitions that seek out targets.

And I might add, we are going through a PQ-die program with that right now which will improve its lethality an additional 40 percent as a result of the testing that has occurred.

And finally, the J–SAM—the J obviously stands for "joint", and our partner in this one is indeed the Navy. This particular weapon is a standoff weapon. Its design points are that it will have at least a 100-mile range from low altitude, a design point out close to 200 miles at high altitude, and it is designed to allow our bomber force primarily to employ it standing outside the terminal defenses or to take down some part of the terminal defenses before you would penetrate it to denigrate the threat.

This particular program is about to enter a competitive phase here within the next 3 months. And as I mentioned, it is competitive; it is joint with the Navy with both of us buying this.

The key part of this program, this is one of the flagship or pilots that the Department is using to emphasize cost as an independent variable. As was the case with several of the other programs I mentioned, including the Joint Strike Fighter, this is a case where we had the war fighter and the developer and industry all working together, so that they understand what the trades are of performance versus cost, and they can make those trades objectively on the front end.

Mr. MONEY. Mr. Chairman, before we go on into space, I want to correct or make sure we got it correct. Back on when you asked me the question on the F–15E, the slide says two in 1997. That is two additional over and above the four.

General MUELLNER. We are buying four this year, four F–16's.

Mr. MONEY. You asked me if we had additional money, what would we do? So it is two on top of the four. I want to make sure. The slide only said two. OK.

Mr. CHAMBLISS. Before you leave J–SAM, let me—not knowing what you have said, let me just ask a question about the fact that is it the position of the Air Force that we have got to have a missile with the capability of being both precise and survivable, stealthy?

General MUELLNER. Yes, sir. "Survivable" is the key word there, as "stealthy" is something generally required to achieve that. But there are other approaches that are being brought forward to do that.

Our belief is, in the way the target—I mean, the way the requirement is phrased is a target kill requirement in a particular threat array. So indeed, in order to do that and to do it relatively efficiently, you have to be highly survivable to do that.

Mr. MONEY. Let me—I think that is an excellent question, and we had prepared a backup chart, but I think this may be a good time to talk about that.

General Muellner mentioned that the number of weapons that we are coming down to, there is really a very detailed strategy behind this, and this chart here I think will epitomize that. It is a range-versus-accuracy tradeoff. The numbers there are classified, but you can get the feel of short, mid-term, and long-range, as well as accurate and then precise. So there really has been a lot of strategy in it. This is put into just a minimum number of weapons to, in fact, hit this whole matrix of eventual targets.

General MUELLNER. It is a very key element for being able to effectively use our bomber force, especially in the early days of a conflict.

In the case of the B–52 and the B–1, for instance, it is what allows you to hit some of the highest, most highly-protected targets early on. In the case of the B–2, it is one of the things that allows you to take out some of the key defense nodes that further enhances your survivability and your ability to signature manage. So it is really a key element.

And again, it is primarily focused on the precision side of doing that. We have a lot of area weapons, the conventional ALCM, for instance, air-launched Cruise missile, is more of an area kill weapon. This is precise, though.

Mr. CHAMBLISS. And what is your schedule on that? Still looking this fall to narrow the list down?

General MUELLNER. Yes, sir. The actual process will occur in the June/July timeframe of doing that. We will go down to two contractors, like (J–DAM), who will then go through a competitive pre-EMD phase, a dem-val phase, if you will, and we will aggressively work the cost side as we did in J–DAM during that phase. But we will go to two contractors for that.

Mr. CHAMBLISS. And how long do you anticipate that process taking before we actually get to awarding the contract, and then from there what are you looking at from the standpoint of having the missiles?

General MUELLNER. We are looking at the EMD activity that would follow that, culminating in a delivery of weapons in about the ought-ought——

Mr. MONEY. Late 1999, ought-ought timeframe, they will enter the inventory.

General MUELLNER. Again, a big driver and an interesting way the contract is structured is, based upon the amount of risk they bring into the program, based upon their designs and so on, they get to somewhat determine as a risk mitigation what the length of the program needs to be. So that is a key metric to some of them who are bringing near off-the-shelf solutions.

Mr. CHAMBLISS. And obviously cost, as always, is a driving force. But that is an interesting chart right there, because really what you are looking at is that long-range capability of——

Mr. MONEY. Precision.

Mr. CHAMBLISS [continuing]. Survivability and precision.

Mr. MONEY. Absolutely.

General MUELLNER. And as I mentioned a moment ago, this program has been the one identified by Dr. Perry and Dr. Kaminski as the pilot for working cost as an independent variable. So in every case when there are performance decisions being made, they are being made with cost every bit as important as is range and accuracy and all those sorts of things.

And then that is true—and that is becoming, I think, the normal way of doing business—that is true in the case of the Joint Strike Fighter also where the user has come in and stipulated a cost requirement that is a key performance parameter, and then that is validated by the Joint Requirement Oversight Council through the joint requirements process.

General MUELLNER. I would like to move out of the weapons area now, if I could, and into the space superiority area. I am not going to touch on all these programs, but as we will talk about, the programs narrow down into some specific things that we provide to the joint war fighter.

Ms. HARMAN. Mr. Chairman, excuse me.

General MUELLNER. Please?

Ms. HARMAN. Could I just ask one question about weapons? I am sorry I am back a little late——

Mr. BATEMAN [presiding]. Certainly.

Ms. HARMAN [continuing]. Before we move on, consistent with the way we are running this hearing.

I am sorry that I missed the conversation on the B–2, and I certainly do not want to get into a long harangue.

However, one of the things that advocates of the B–2 like me keep saying, and I just want to verify this, is that if we had more of these, we might save money on some of our weapons purchases, because we would need fewer standoff weapons, and we could fly over targets using Stealth to our advantage and drop stuff directly on moving or stationary targets.

And I just wonder if you have any comments on that point?

General MUELLNER. You bet. As part of the analysis that we did last year when this issue was up, which IDA, the Institute of Defense Analysis, participated and actually did the detailed analysis, you know, what their results showed is that you are better off weaponizing—better weaponizing the ones you have than buying additional ones at that point in time.

The tradeoff between survivability, whether it be from a platform that is highly survivable because it is highly stealthy or a standoff weapon which also has to survive the end game, so it needs some degree of survivability, is a continuing one that went into that particular discussion. And that is what was framed in that recommendation that came forward at that point in time.

Ms. HARMAN. But is it not true that standoff weapons are a lot more expensive, because they have to have their own launch capability, than one that is just flying on a platform that is already going somewhere?

General MUELLNER. If I could go back to an earlier chart, I mean, the answer is clearly yes. And precision weapons are more expensive than just a dumb Mark–82, if you will, or Mark–84.

If we look at the comparisons, the cost range for the JSOW weapon right now is somewhere between $400,000 and $700,00 a copy. That is the range that the users have stipulated.

The cost range, for instance, for a J–DAM—now this is an accurate, but not precise, type weapon—this is a $14,000 round.

Ms. HARMAN. Right.

General MUELLNER. OK. Plus another $2,000 for the bomb. So there is a big difference.

Joint Stand-Off Weapon [JSOW], which is standoff again, is a more expensive round also. So clearly that is a continual tradeoff that has to be made.

Ms. HARMAN. Thank you.

Mr. BATEMAN. What platform would the JSOW or whatever it is be used from?

General MUELLNER. The initial platforms that it will be certified on in the case of our—the U.S. Air Force side include the B–2 and the F–16 block 50. The B–1 immediately follows that. So we are focusing it more on the bomber force and the B–2, I might add.

And I mentioned earlier, JSOW is an important weapon for the B–2 because, while stealthy, it is not invisible. And so there are some particular nodes that when you want to prosecute attack very quickly, you want to take out a couple of those key nodes to further enhance your survivability. So the B–2 would use that for that particular mission.

Mr. MONEY. And it would also be carried by Navy platforms.

General MUELLNER. Right. The F–18 is the first one it will be certified on.

Mr. CHAMBLISS. And ultimately the F–22 also, right?

General MUELLNER. That is correct.

Mr. MONEY. Yes, sir; yes, sir.

Ms. HARMAN. But not all of those platforms are stealthy. Some are, and some are not.

General MUELLNER. That is absolutely right, or they are stealthy of varying degrees. That is correct.

Ms. HARMAN. Thank you, Mr. Chairman.

Mr. BATEMAN. I thank you, Ms. Harman. And before we go on, let us return to the B–2, because that is an area that I missed your original presentation, and I hate to ask you to plow the same furrow twice.

General MUELLNER. That is quite all right.

Mr. BATEMAN. But I am intrigued as to what is the administration's current position vis-a-vis the B–2?

My original understanding was that what we did for the B–2 in fiscal year 1996, the President was seeking rescission of the money, and yet yesterday's paper has a headline—and I did not get to read all of the story yet—that says the President wants to buy one more B–2?

Mr. MONEY. It is not buying one more, Mr. Bateman. It is taking the first test vehicle, AV–1, and retrofitting it, and we will then have a training and attrition reserve aircraft. There was $493 million appropriated by Congress, authorized by you all, and it is how to best use that money. There were several options. The decision was made, and that was what was announced yesterday, was to go with converting AV–1 into the training and attrition reserve aircraft.

Mr. BATEMAN. So it is the retrofit for training and other purposes of an existing B–2, not the procurement of any additional B–2's.

Mr. MONEY. That is right. It is retrofitting an existing aircraft.

General MUELLNER. That was a test aircraft, sir, that was never going to be brought into a production configuration. It was going to remain in a test-only role. And what this will do is bring it up to a block 30 configuration, which is the end configuration for our operational B–2's.

Mr. BATEMAN. Does that consume the entire $400-and-some million?

Mr. MONEY. Yes, sir.

General MUELLNER. Yes, sir.

Mr. BATEMAN. And leaves no warm production line for future B–2's?

General MUELLNER. Sir, as we talked about, it certainly helped part of the production issue, and it is being done, as are all the other block 20, block 30 retrofits—are being done on the same production line.

But as I mentioned earlier, it does not deal with the vendors' issues because it is only one more aircraft that needs to be populated with line replaceable units [LRU's] and things of that nature.

I might add, our previous activities were not dealing totally with any of those either, because that is a very expensive process to do that.

Ms. HARMAN. Mr. Bateman, if I might just comment, this is an issue, as I am sure you know, near and dear to my heart, and many of the——

Mr. BATEMAN. I have heard that.

Ms. HARMAN [continuing]. Contractors happen to live in my congressional district. But there are a lot of advantages to the decision that was just made. I think it is the best possible expenditure of the funds, and it will make it possible, if in the future we ever decide to buy more or perhaps to buy a different advance bomber, for us to be able to segue into that with less cost and less time delay.

One other thing is happening, I am sure these gentlemen know, which is that the Roles and Missions Commission report, the next one, will assess one more time this bomber issue, because many of us feel that the last bomber study that was done was based on flawed assumptions, and this time the hope is that the questions

will be adequate and the answers will be dispositive, whatever those answers may be.

Mr. BATEMAN. Okay. This retrofit is of the first B–2 that came off the assembly line?

General MUELLNER. That is correct. The AV–1 is what it is called, Air Vehicle 1.

Mr. BATEMAN. Is there a likelihood that the second, the third are going to be——

General MUELLNER. Sir, they already have been. The original test aircraft, ships 2 and beyond, were already going through the retrofit process, and they eventually will be block 30 airplanes.

The decision had been made earlier that driven by the cost of doing it, because AV–1 was different than the other aircraft, we learned an awful lot. And as a result of that, the decision had been made not to retrofit it. This reverses that, if you will, with that money now available to do that.

Mr. BATEMAN. Thank you.

General MUELLNER. If I could get into the space superiority area, I will talk about several of these programs, primarily in the communications side and also on the navigation side and then into the threat warning or missile warning and attack warning.

Several areas that I will not talk about, one that is an important program however, is what is called the evolved expendable launch vehicle [EELV] program. This is a launch vehicle, and it is important for us in driving down the cost of access to space. This program right now is in a competitive phase. We have four teams competing. We will go from there down to two teams in the out-years.

The indications we are getting right now from all the offerors, all of whom are very responsive right now, is that they are going to drive down the cost of getting a pound into both low or even high-orbit states of anywhere from 25 to 50 percent. So there is a lot of good news here, I think, in what industry can do when they are challenged.

OK. Let me talk about the global positioning system [GPS], obviously something that has become important to everybody. This particular program is a very mature one, but it is one that will be in sustainment for a long, long time, obviously.

We have to maintain a constellation of 24 vehicles up in space to provide the worldwide coverage. I might add we have done some major restructuring of how we do this. And as a result of that, by consolidating contracts, going to single contractors with total system responsibility, we have driven quite a bit of cost out of the program.

On top of that, the program is much more responsive, and we can get a new satellite design out into the field three years earlier. We have driven that from 8 years down to 5 years. So again, this is an example where streamlining really does work, and it is doing good things for us.

In the communications area, again I think the military strategic tactical relay [MILSTAR] program is an important one, especially to the theater war fighters to provide them secure communications across the board. We now have two satellites up in space. I just saw the third one just recently. It is well into the build process, into test.

That program was again totally restructured. And one of the main restructuring activities was to get rid of Government inspections, and we drove those inspections from thousands of inspections down to a very limited number, less than 50, and as a result managed to take $236 million out of the program to produce the same quality of product.

So indeed we find that when we challenge industry, it really does pay off.

Ms. HARMAN. And if I could just make a comment there, Mr. Chairman, there is an example of how cold war technology was very effectively adapted to post-cold-war needs. And just to make a personal comment, that is what some of us think could be the future for the B–2 as well.

General MUELLNER. Another program that is obviously important to us as a nation is the program that will replace our defense support program. This is the program that gives us warning of missile attack or missile launch. It consists of an existing constellation of satellites.

We will continue to launch out this program. Our last satellite, No. 23, actually launches in the ought-two timeframe. But the replacement for that consists of a series of satellites, and I will quickly describe those in the next chart.

And those consist of a series of geosynchronous high-Earth orbit and low-Earth orbit satellites that will provide us with not only the same type of missile warning activity, but a much more responsive and much more geo-accurate location accuracy in the out-years from this particular system.

So this space-based IR system, as it is called, will replace the existing defense satellite program [DSP] constellation.

Mr. BATEMAN. Any implications of this in terms of the antiballistic missile treaty?

General MUELLNER. Not that we have found, sir. It is indeed a warning system per se. It is consistent with our current DSP. It just provides us with improved accuracy.

Your only implications where you start getting into treaty issues is when you move beyond this. This is not a case of putting weapons anywhere; it is providing situational awareness.

Mr. BATEMAN. Well, it strikes me that it is not very useful information nor capability if you cannot do anything about what you detect.

General MUELLNER. Yes, sir. This is an important contributor, as DSP is, to doing something about it. As an example, DSP was a major contributor for us trying to deal with in cuing Patriots and what have you in Desert Storm.

Improvements in the defense satellite rogram [DSP] where we use a stereo, use several of the satellites, have further improved our ability to aid targeting of things like Patriots. It will be an important cuing device, for instance, to the airborne laser which I mentioned earlier, which will help us deal with that theater missile defense threat.

Ms. HARMAN. Mr. Chairman, I think this architecture is critically important, and I was looking for the initials, SMTS. I do not know if they are on that chart or another chart, but I want to ask about the SMTS Program.

Mr. MONEY. That is the low-orbit——

Ms. HARMAN. Right, okay.

General MUELLNER. Yes. In reality, surveillance and missile tracking satellites [SMTS] is kind of a buzzword that has been attached to the low-Earth orbiter constellation, which is part of the space based infrared [SBIRS] program, the space-based infrared [IR] system.

Ms. HARMAN. Well, I even know what it stands for. It is the space and missiles tracking system. But I did have a couple of questions on that, and I think this is the time to ask.

First of all, I asked when we had the Chiefs up last week or so, I asked about a bad rumor that $51 million of the fiscal year 1996 appropriations for SMTS might be rescinded. And I do not know that there has been any final decision there.

But my second question—that is question 1—the second question is: I am hearing, Mr. Money, that your Deputy, Darlene Julian, may be involved in some restructuring of the whole program, and I think this committee ought to know about that on the front end.

Mr. MONEY. Absolutely. I am going to recuse myself of anything because of my past employer. So I do not make any decisions on this program. General Muellner will answer all the questions here.

General MUELLNER. In answer to your questions in order, when the Air Force looked at the tasking from the Hill here to accelerate the LO, because let me put in perspsective what the schedule is here, the high-Earth orbiting satellites or those things that constitute it, which are riders on other satellites, and the geosynchronous contribution, which are two satellites and four satellites respectively, are part of the initial constellation that will replace the DSP.

It is when you need to get into the midphase of intercepting a ballistic missile of some kind that you need to get into this lower constellation, which is the SMTS or the low-Earth orbiting constellation.

There was an identification to accelerate that program from an ought-six to an ought-two timeframe for fielding that. The money that was provided for that was, in the Air Force's view, in excess of what we needed to do that.

We were continuing with the flight demonstration program to accelerate that and so on. Since doing that, I might add, and as a result of that, the $51 million was identified as in excess of the needs to accelerate as you all had asked.

Since doing that, what we have found is that the contractor that was executing the full scale development [FSD] phase has run into some technical problems. So as a result of that, we needed some additional money to fix that technical issue, and that also sensitized us again that we need to make sure that we have good competition out there for EMD.

And as result of that, while it is not going to be $51 million, we are going to source some additional resources to do that, to fix that.

Ms. HARMAN. So this program, at least with respect to fiscal year 1996 funding, is going to be fully funded, so that you can accomplish the task.

General MUELLNER. We are going to, as you all asked us to, to accelerate that. And your reference to Mrs. Julian, yesterday she

ran—or the day before earlier she ran a review of this program, and then yesterday we took it to an executive committee with the recommendations to do as I just said.

One is to make sure that we could meet the schedule that was required, and two, to make sure that we understood the risk of doing that and had viable competition.

Mr. MONEY. The intent here is that other programs will follow all the congressional guidance.

General MUELLNER. Are there any other questions on the space-based IR before I leave that, because I think we have covered really the main issues with it?

[No response.]

General MUELLNER. OK. Now let me move into our last mission area, if you will, that we provide to the theater war fighters, and that is this area of information dominance, as it has become called.

The key elements that we use to do that are things like our airborne warning and control system, the AWAC's, the E–3 aircraft, the joint STARS airplane, which is the E–8, which does the same sort of thing for the ground targets, and our Rivet Joint, a number of unmanned aerial vehicle [UAV's] which are coming into their own and contributing to this role, and, of course, the U–2, and we still have several SR–71's that are in the reconnaissance role, although they are not used significantly right now.

Let me first talk about AWAC's. We are just in the process of completing two major upgrades to the program. One of them is to improve its sensitivity against lower radar cross section [RCS] targets. It is called the RSIP or radar sensitivity improvement program. The other is a major upgrade called the block 30/35.

The other key elements we have on the horizon for this very, very important mission area is an RM&S, or reliability, maintainability, supportability issue, called Extend Sentry.

This is a very important program to us, as you probably saw on the Chiefs' list. It is important for us to try to accelerate this to the degree we can, because in reality, by executing this program, it effectively provides two additional AWAC's just by improving the reliability or availability of the existing fleet.

The other thing we are doing is with Boeing. We are working to implement an open system architecture that will facilitate more rapid upgrades in the program, allow us to use more commercial components.

We are evaluating the issue or the system that the Navy has developed, which is cooperative engagement capability on the aircraft right now. In fact, we just participated in a major exercise.

And then the last thing is, we are really looking very hard at re-engining this aircraft. The JT–33 engines on this are old engines, and while they are reliable, they are becoming more and more difficult to support and more expensive.

And we are looking at putting a new engine, like a CFM–56 category engine on the aircraft, which will not only improve its O&M, operations and maintenance, cost side, but will also improve its performance by getting more altitude and range out of the aircraft.

In the case of joint STARS, I hear very shortly, in 20 minutes, we will accept our first production joint STARS airplane down in

Melbourne, one of the few systems we have ever fielded where it has already got two battle streamers on its flag.

It just returned from Bosnia, of course, and it performed pretty well over in the gulf in Desert Storm.

We are procuring two of these a year. Our desire is to try to accelerate this in the near year, and this is one of the reasons why the Chief has it very high, at the top of his list. And the reason for that is, is that it is in so much demand from the war fighters. And as a result of that, we would like to get more of them out to them quicker.

Now the contractor can handle the acceleration. We have been budget-limited to date in doing that.

Mr. BATEMAN. Well, is it fair to say that the Chief of Staff recognized this need when the fiscal year 1997 budget was being put together?

General MUELLNER. Yes.

Mr. BATEMAN. Or simply his request was, for totally budgetary reasons, denied?

General MUELLNER. Sir, as my last chart will show, he, like the rest of us, had to make some very tough decisions. And we have facilitated this program based upon the top line for two a year. And that is the reason indeed it was a top-line issue.

Mr. BATEMAN. OK.

General MUELLNER. So I have got just a couple of charts to wrap up the main area, and this is really a summation on the science and technology side.

Right now we have a program of this magnitude in 1997, which is balanced between the 6–1, 6–2, and 6–3 areas. That balance is about 20 percent 6–1, about 50 percent in the 6–2, and 30 percent in the 6–3 area. And that has been a historical average; it varies slightly.

That is about 80 percent contracted out across all of our lab structure, and we are indeed in the process of significantly drawing down our lab structure. By the ought-one timeframe, we will be down 39 percent, smaller labs on the Government side.

The near-term focus, as you can see, where we have shifted emphasis this year is in dealing with aging aircraft problems, the area of crew escape, and this dealing with the anthropometric accommodation issue also, the information dominance in space technology areas, training, and then also an increased emphasis on hypersonics as it relates to weapons and things of that nature.

We have a good guidepost out there in the form of New World Vistas, which was a year-long effort that the Scientific Advisory Board did. I think we provided you all both CD–ROM's and some hard copies of that. And that gives us a great view as to what technologies we need to invest in and also some we should divest of, that is the commercial marketplace does a better job, in order to have the right mix out in the 2025 timeframe.

I think it is indeed a good piece of work, and we are making a lot of use of it. And as I mentioned, we have tried to provide you copies of that, and if you normally go out and surf the Web or whatever it is these days, you will find that it is up on Internet and easily accessible.

Finally, I would like to wrap up in terms of a summary of my portion of this. Clearly, as we have talked to, we have seen the acquisition budgets decreasing, and that is the bad news.

The good news is that we are gaining some of that back through effective streamlining. I have shown you a couple of examples, and as Mr. Money pointed out, those examples total to in excess of $13 billion that we can readily identify that we have either avoided costs on or actually have saved that money to modernize in other areas.

A key part of that is that the war fighters are playing an important element in this and that they are not coming in with requirements locked in stone before they understand what the cost of meeting those are. They are participating in the process. They are making the intelligent trades that are necessary to achieve affordability.

And then finally, as I said, we are working hard to keep our key programs on track. We have had to make some tough decisions, and I am sure this year and next year will not be at all different.

So I think we would be more than happy to take any other questions that you might have.

Mr. MONEY. If I just might add, Mr. Bateman, at this point hopefully you are getting the flavor that there are a lot of things going on here. We are trying very hard. But it is really just the beginning of this journey of getting more costs out, cost as an independent variable, answering the war fighters' needs in that regard.

But clearly the one thing that would help us the greatest across that is funding stability for the programs over multiple years.

Thank you.

Mr. BATEMAN. Thank you, Secretary Money, and thank you, General Muellner.

We seem to have run out of members to ask questions. But I believe we will probably find that some members will want to submit questions for the record, as well as staff may have some, and we would appreciate if you could turn those around as quickly as you can.

Mr. MONEY. Yes, sir, we will be glad to.

Mr. HUNTER. And I thank you both for your testimony. It has been a very information-intensive hearing this morning.

Mr. MONEY. Thank you very much.

Mr. BATEMAN. We appreciate it.

[Whereupon, at 12:42 p.m. the subcommittee was adjourned.]

NAVY/MARINE CORPS MODERNIZATION

HOUSE OF REPRESENTATIVES, COMMITTEE ON NATIONAL SECURITY, MILITARY PROCUREMENT SUBCOMMITTEE, JOINT WITH MILITARY RESEARCH AND DEVELOPMENT SUBCOMMITTEE, *Washington, DC, Friday, March 29, 1996.*

The subcommittees met, pursuant to notice, at 10:11 a.m., in room 2218, Rayburn House Office Building, Hon. Duncan Hunter (chairman of the Subcommittee on Military Procurement) presiding.

OPENING STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. HUNTER. The subcommittees will come to order. This is a joint hearing between the Procurement Subcommittee and the Research and Development Subcommittee.

Unfortunately, Curt Weldon's mother died this week following a stroke and Curt, our Research and Development chairman, cannot be with us. Also, he is undergoing surgery himself for a detached retina, so we are going to accept his statement into the record and we look forward to him having a chance to be thoroughly briefed on the results of this hearing this morning and we wish him well.

This morning, we welcome witnesses from the Navy as we complete our series of modernization hearings with military departments.

In the case of the Army, we found the fiscal year 1997 procurement request to be level with the 1996 request, but $1.6 billion, that is, 25 percent, below the level we authorized.

In the case of the Air Force, we found the fiscal year 1997 request to be $2.1 billion less than the fiscal year 1996 request and $2.4 billion less than the level we authorized.

In the Navy's case, we find the fiscal year 1997 procurement request is $1.9 billion greater than the fiscal year 1996 request but $700 million below the level we authorized. It would appear that the Navy is doing better than their sister services, but I would note that two-thirds of the Navy's $1.9 billion procurement budget request increase, as compared to their fiscal year 1996 request, is accounted for in a single line item, the F/A–18E/F, even though the Department is requesting the same number of aircraft.

Those of you who have attended any of our previous hearings know that I have not been reticent in my criticism of the fact that the services' modernization accounts continue to be bill payers for shortages in the personnel and readiness accounts. It is always next year, if you watched the preceding oversight hearings, and I

think we have quoted Vice Admiral Owens a number of times when he said, "It is time to stop moving the nail on the wall and it is time to stop promising that tomorrow things are going to get better and start doing something about it." But it is always next year that the tide is going to turn and real increases in procurement are forecasted to appear.

According to the Navy/Marine Corps fiscal year 1997 posture statement, "To support long-term acquisition, we plan to increase procurement accounts." We shall soon hear from our principal witness that this statement does not apply to funding next generation attack submarines, and I am not sure it applies at all if one believes Secretary Dalton's statement before the full committee 3 weeks ago. He told us that, "We are fine through the future years defense programs [FYDP] and I fully support what we are doing in this budget."

As the saying goes, the proof is in the pudding and we have seen very little to convince us that procurement budgets will go up and less yet to convince us that they will attain the $60 billion level that the Joint Chiefs of Staff have told Secretary Perry to reach by 1998.

I might add that we had the Joint requirements oversight Committee [JROC] before us yesterday and in asking them the question as to whether they liked President Clinton's fiscal year 1995 budget that forecast about $10 billion more this year in procurement than the present budget actually provides for, all of them were in assent that they would rather have the budget that was projected earlier. In fact, the fiscal year 1995 budget projected, between this year and fiscal year 1998, almost a $20 billion increase in procurement accounts.

On a different note, this past Tuesday, Secretary Perry provided the committee with the Department's attack submarine plan, which section 131 of the fiscal year 1996 Department of Defense [DOD] Authorization Act compelled him to do. As my colleagues will recall, crafting this section of the act in our conference last year was no small feat. We encountered considerable resistance from the Navy and some from the other body, as well.

I am pleased to note that Senator Cohen, the chairman of the Senate Armed Services Committee Seapower Subcommittee, convened a hearing on attack submarines on Wednesday and balanced the testimony of the Navy witnesses with that of the panel of distinguished critics we had before us last September. As a matter of fact, I understand he has invited those individuals back to sit down with him and other Senators on the committee for a candid roundtable discussion.

Of course, that panel was part of the panel that was convened in the late 1980's by former chairman of the Armed Services Committee Les Aspin, and I think he did a real service to the country by putting together that blue ribbon panel which included Paul Kaminski and Bill Perry. Obviously, they are not now members of the panel, but we have a number of distinguished members of that panel serving in this capacity on this blue ribbon panel and they gave us, I think, some excellent guidance and provided to the Senate yesterday also some very excellent guidance.

Section 131 significantly restructured the New Attack Submarine Program. Rather than endorsing the Navy's plan to administratively allocate production of the NAS to the Electric Boat Division of General Dynamics in Groton, CT, the authorization conferees adopted a program to use technological innovation and competition to ensure that the Navy's next generation of attack submarines will be more capable and current than next generation Russian submarines and more affordable than the new attack submarine [NAS].

Let me tell you why. I think everybody here knows John Foster is one of the great defense architects of this century and still the gentleman who led the Defense Science Board's Summer Studies Program this last summer and who has been present in many of the major weapons decisions that we have made over the last 20 years and has had a hand in them. He said this when he appeared before us on September 7 of last year.

I quote Dr. Foster,

> The first revolution is technological and has to do with the rate at which large nations, particularly Russia, China, and India, are improving their submarine capabilities. You will recall that during the last decade, the Russians made very rapid improvements in the qualitative characteristics of their submarines so that today the performance characteristics of their best boat is roughly the same as our best boat.
>
> However, a key concern is that their rate of improvement has been substantially greater than ours and if we do not change our ways, they will attain qualitative superiority. In addition, the rate at which they are producing the new classes of submarines is higher than ours, so that could place them in the 21st century with a larger number of submarines with qualitative superiority.

This subcommittee and this committee was in the business last year of changing our ways with respect to the way we build submarines and the quality and the cost of those submarines and it is an enormous undertaking, but I was hopeful at the beginning of this process that it would be easier than it seems to have been because helping to put this statement together and the report that came out of former chairman Les Aspin's blue ribbon panel, which basically carried the theme that I just read to you, assigning themselves to that theme were Bill Perry and Paul Kaminski, who presently have the power as DOD leaders to effect a real change in the way we build submarines.

Later on today, hopefully, we will get to the submarine portion, or reserve the submarine portion of this hearing until the end so we have a chance to really thoroughly air this issue, Mr. Secretary.

Section 131 replaces serial production of the first of class new attack submarines [NAS] beginning in 1998, with a series of four submarines beginning construction of each of fiscal years 1998 through 2001. These transitional submarines will use the (NAS) design as a baseline and successively incorporate new technologies. Two of the four submarines will be built at Electric Boat and two at the Nation's other nuclear-capable shipyard, Newport News Shipbuilding. A contract for serial production of a first of class next generation submarine will be competitively awarded on the basis of price in 2003. The Under Secretary of Defense for Acquisition and Technology is to oversee the development and improvement of the Navy's New Attack Submarine Program.

Finally, section 131, as I noted, requires the Secretary of Defense to submit a plan which conforms with the one outlined in the legislation. This plan is to be followed by annual updates each of the next 5 years.

Twenty-five days ago, the Department sent up its budget request. As of today, we have received very little in the way of official justification details for this request. In order to provide us with some of these details, as well as the details of the Navy's attack submarine plan, we have with us this morning the Honorable John W. Douglass, Assistant Secretary of the Navy for Research, Development, and Acquisition. John, thank you for being with us. We have Vice Adm. Thomas Joseph Lopez, Deputy Chief of Naval Operations for Resources, Warfare Requirements, and Assessments; and Maj. Gen. Jeffrey W. Oster, Deputy Chief of Staff, Programs and Resources, Headquarters, U.S. Marine Corps.

We welcome you all and thank you for being here. Mr. Secretary, before I turn the floor over to you, I first want to call on the gentleman from Missouri, the ranking member of the Procurement Subcommittee, for any remarks he would like to make. Mr. Skelton.

STATEMENT OF IKE SKELTON, A REPRESENTATIVE FROM MISSOURI, RANKING MINORITY MEMBER, MILITARY PROCUREMENT SUBCOMMITTEE

Mr. SKELTON. Thank you very much. I will be very short, Mr. Chairman. I appreciate your calling this hearing. I especially look forward to the witnesses and I am keenly interested in what Admiral Lopez will say regarding shipbuilding, submarines, and the like.

We were very, very busy, as you know, last year. We had some contentious issues, and yet I think we made some solid decisions, but we have a long way to go and I look forward to your testimony as to what we can do for the sea services, not just for today but in the years and decades ahead. In going through the overview that has been supplied to us, we have some major challenges and these challenges are going to be decided, it appears, this year.

Mr. HUNTER. I thank the gentleman. We are grateful that we have the distinguished ranking member of the full committee, Mr. Dellums, with us, and the chairman of the full committee, Mr. Spence. Thank you gentlemen for being with us. Would either of you wish to make a statement?

[The prepared statement of Mr. Weldon follows:]

STATEMENT BY
THE HONORABLE CURT WELDON
CHAIRMAN, RESEARCH AND DEVELOPMENT SUBCOMMITTEE
HOUSE NATIONAL SECURITY COMMITTEE
HEARING ON NAVY MODERNIZATION
MARCH 29, 1996

THANK YOU, MR. HUNTER. I WANT TO JOIN YOU IN WELCOMING ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION JOHN DOUGLASS IN HIS FIRST APPEARANCE BEFORE THE HOUSE NATIONAL SECURITY COMMITTEE. HE HAS BEEN A FAMILIAR AND FORMIDABLE FIGURE IN HIS PREVIOUS CAREER ON THE STAFF OF THE SENATE ARMED SERVICES COMMITTEE AND IN HIS DISTINGUISHED SERVICE AND CONTRIBUTION TO THE NATION'S DEFENSE WHILE SERVING ON ACTIVE DUTY IN THE AIR FORCE.

I ALSO WANT TO WELCOME VICE ADMIRAL JOSEPH LOPEZ AND MAJOR GENERAL JEFFREY OSTER, WHO, RESPECTIVELY, ARE THE NAVY AND THE MARINE CORPS STAFFS' OVERALL REPRESENTATIVES FOR THE WARFIGHTERS AND ARE RESPONSIBLE FOR PROGRAM PRIORITIES AND WARFARE REQUIREMENTS. IT IS IMPORTANT WHEN WE REVIEW THE NAVY'S MODERNIZATION PROGRAM THAT WE HEAR FROM THE USERS - THE REPRESENTATIVES ON THE NAVY AND MARINE CORPS STAFFS OF THE SAILORS AND MARINES IN THE FLEET AND ASHORE - IN ADDITION TO THE RESEARCH, DEVELOPMENT, AND ACQUISITION COMMUNITY REPRESENTED BY MR. DOUGLASS.

THE CHAIRMAN OF THE HOUSE NATIONAL SECURITY COMMITTEE, FLOYD SPENCE, HAS INDICATED THAT THE COMMITTEE WILL ADDRESS IN THE FISCAL YEAR 1997 DEFENSE AUTHORIZATION BILL A POTENTIAL ADD OF $13 BILLION TO THE PRESIDENT'S BUDGET REQUEST. MUCH OF THAT WILL NECESSARILY GO TO THE MILITARY SERVICES' PROCUREMENT ACCOUNTS. WE CAN NO LONGER AFFORD TO LIVE OFF THE BOUNTY OF COLD WAR PROGRAMS WHICH YIELDED THE AIR, LAND, AND SEA FORCES THAT WERE SO IMPORTANT TO THE SUCCESS OF OPERATIONS DESERT SHIELD AND DESERT STORM. THE PROCUREMENT HOLIDAY IS OVER! THE CLINTON ADMINISTRATION MUST BEGIN TO ADDRESS SERIOUSLY THE RECAPITALIZATION OF THE FORCE AND THE PROVISION OF THE ADDITIONAL FUNDING TO FOR EQUIPMENT REQUIRED TO ENSURE THAT OUR SOLDIERS, SAILORS, MARINES, AND AIRMEN ARE THE BEST EQUIPPED IN THE WORLD.

AT THE SAME TIME, WE MUST ALSO ENSURE THAT A STRONG, ROBUST, AND BALANCED RESEARCH AND DEVELOPMENT PROGRAM - BASIC RESEARCH, EXPLORATORY DEVELOPMENT, ADVANCED DEVELOPMENT, DEMONSTRATION/VALIDATION, ENGINEERING AND MANUFACTURING DEVELOPMENT, OPERATIONAL SYSTEMS DEVELOPMENT AND RESEARCH, DEVELOPMENT, TEST, AND EVALUATION SUPPORT - IS MAINTAINED TO ENSURE THAT THE TECHNOLOGY SEED CORN WHICH WILL PROVIDE THE ADVANCED CAPABILITIES REQUIRED FOR U.S. FORCES IN SOME FUTURE CONFLICT IS PLANTED, NURTURED, DEVELOPED, AND HARVESTED WITHIN THE

DEPARTMENT OF THE NAVY, THE OTHER MILITARY DEPARTMENTS, DEFENSE AGENCIES, INDUSTRY, AND ACADEMIA. WHAT DOES THE DEPARTMENT OF THE NAVY REGARD AS THE CRITICAL SCIENCE AND TECHNOLOGY AND DEVELOPMENT PROGRAMS REQUIRED TO PERMIT THE NAVY AND THE MARINE CORPS TO EXECUTE THEIR DOCTRINES OF "FORWARD FROM THE SEA" AND "OPERATIONAL MANEUVER FROM THE SEA"?

WE LOOK FORWARD TO HEARING FROM SECRETARY DOUGLASS ABOUT THE NAVY'S MODERNIZATION PROGRAM: WHAT DOES THE NAVY PLAN FOR RESEARCH AND DEVELOPMENT

o OF ADVANCED SUBMARINE TECHNOLOGY THAT WILL SUPPORT THE DEVELOPMENT OF SUCCESSIVELY MORE CAPABLE NEW ATTACK SUBMARINES;

o OF MINE COUNTER-MEASURES THAT WILL BE ESSENTIAL TO THE SUCCESS AND SAFETY OF THE AMPHIBIOUS READY GROUPS AND SUPPORTING BATTLE GROUPS IN THE WORLD'S LITTORAL REGIONS;

o OF NAVAL SURFACE FIRES IN SUPPORT OF OVER-THE-HORIZON OPERATIONAL MANEUVER FROM THE SEA;

o OF THE ANTI-SUBMARINE WARFARE THAT MUST ADDRESS THE CONTINUING CAPABILITY OF THE RUSSIAN SUBMARINE FORCE AS WELL AS THE PROLIFERATION OF QUIET DIESEL SUBMARINE AND ADVANCED UNDERSEA WEAPONS IN THE THIRD WORLD;

o THAT WILL SUPPORT THE FIELDING OF AREA AND THEATER-WIDE BALLISTIC MISSILE DEFENSES FROM MOBILE, NAVAL PLATFORMS;

o THAT WILL ASSURE THE INTELLIGENCE, MANEUVER, COMBAT SUPPORT, LOGISTICS, AND COMMAND AND CONTROL INTEROPERABILITY REQUIRED FOR THE JOINT OPERATIONS THAT ARE THE "NORM" ON THE MODERN BATTLEFIELD?

AND, WHAT IS BEING ACHIEVED IN ACQUISITION REFORM AND IN "RIGHT-SIZING" THE NAVY'S RESEARCH, DEVELOPMENT, AND ACQUISITION INFRASTRUCTURE THAT WILL MAKE THE AVAILABLE DOLLARS GO FURTHER IN SUPPORT OF ITS MODERNIZATION PROGRAM.

THESE ARE AMONG THE MANY ISSUES AND COMPETING PRIORITIES THAT FACE THE DEPARTMENT OF THE NAVY TODAY, ITS RESOURCE MANAGERS, ITS ACQUISITION EXECUTIVE, AND ITS RESEARCH AND DEVELOPMENT COMMUNITY. WE LOOK FORWARD TO SECRETARY DOUGLASS' TESTIMONY ON THE NAVY'S MODERNIZATION PROGRAM FOR FISCAL YEAR 1997 AND TO THE DISCUSSIONS THAT WILL FOLLOW.

If not, Mr. Secretary, the floor is yours. Thank you for being with us today.

STATEMENT OF JOHN W. DOUGLASS, ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

Mr. DOUGLASS. Thank you, sir. I think it is appropriate for me to begin by thanking all the members of the committee that are here this morning. This committee has a long and distinguished record of supporting the Department of Defense and the Department of the Navy and we are grateful for your support, sir.

As I sit here as a witness for my first time, I look up and I can see people that I have worked with over the years in my military career and when I worked over in the Senate. It is indeed an honor for me to be here representing the Navy/Marine Corps team this morning, sir, so thank you for having me.

As you noted, I have Vice Adm. Joe Lopez with me and Maj. Gen. Jeff Oster, and as we get into the questions and answers, the general way we would like to field those answers, subject to, of course, any way that you want to ask them, is that they would generally address the military requirements issues and the budgeting issues and I would address the acquisition and technology issues.

Per the committee's direction, Mr. Chairman, we have this morning a brief overview which would be followed by a brief summary of the V–22 program, and then, as you have said in your opening statement, we will go into some detail on the New Attack Submarine Program and the plan that we have just submitted to the Congress.

Before I begin this quick overview, I would like to ask either of my two colleagues if they would like to say anything before we go through the briefing. Joe, do you want to begin?

STATEMENT OF VICE ADM. THOMAS JOSEPH LOPEZ, DEPUTY CHIEF OF NAVAL OPERATIONS FOR RESOURCES, WARFARE REQUIREMENTS, AND ASSESSMENTS

Admiral LOPEZ. I would just say, Mr. Chairman, that the Navy, of course, is forward engaged. We are busier now than we were during the cold war. Fifty percent of our ships or more are underway every day and have been for the last 2½ years. Of those ships, half of them or more are deployed for 6 months.

I think we are meeting the Commander-in-Chief's (CINC's) requirements, but there are some gaps. The U.S. Navy is smaller today than it was in 1938. We do not need to get any smaller. I think the BUR level is about right for us to do our job and we want to hold that, but we are worldwide deployed. We are engaging with allies, and the newspapers and Cable News Network (CNN) is full of it, whether it is Bosnia, the Persian Gulf, or the Western Pacific.

In summary, I think the Navy can continue to do its job, but as Secretary Dalton and Admiral Boorda have said, we need to put as much money as we can into modernization. I will be ready to answer your questions at any time, sir.

STATEMENT OF MAJ. GEN. JEFFREY W. OSTER, DEPUTY CHIEF OF STAFF, PROGRAMS AND RESOURCES, HEADQUARTERS, U.S. MARINE CORPS

General OSTER. Good morning, Mr. Chairman. I also would like to thank the committee for the tremendous support that the Marine Corps has received, not just last year but for your sustained support over a long period of time.

As most of you know, when General Krulak became our 31st Commandant, the first thing he did was issue something called the Commandant's Planning Guidance, and right up front in that he said, the two most important things that we do for this Nation is to make Marines and to win battles. Hence, our requirements and our acquisition process are focused on those goals.

We use a concept-based requirement system. Our requirements are, therefore, rooted in our operational concept, operational maneuver from the sea.

And finally, we kind of come at the acquisition process with a little bit different mindset. We do not think in terms of manning the equipment. Rather, we think in terms of equipping our Marines so that they can win battles in the modern and very chaotic battlefield that we face today and in the future.

I look forward, sir, to answering your questions about Marine programs. Thank you.

Mr. HUNTER. Matt, would you move that thing up a little closer? I think the members are going to have a hard time, and I apologize for the small print. We are trying to save money here by using the same charts in different hearings, and I realize how difficult that is, so I will ask Matt to move it up.

This first chart is just meant to give you a quick overview. Mr. Chairman, you pointed out the concern you have about the procurement decline. We are equally concerned and we are hopeful that this is the last year of that decline. Our budget request this year for $23.8 billion is the lowest in a long time. You can see that we are only going to buy six ships plus two national defense sealift ships and some conversions and 40 airplanes. These are the lowest levels since before World War II, so we are at the bottom of a trough that we hope we can build our way out of.

You used the term "changing our ways." We think we are changing our ways, and I hope I can convince this committee that we are. We are putting strong emphasis on acquisition reform. I will go into that in a little bit of detail.

We are beginning to revolutionize the equipment that the Navy/Marine Corps team has. I have just listed a few of the things on the bottom of this chart, the smart ship, the arsenal ship, our new aircraft carrier, our new surface combatant, the V–22, and the new Joint Strike Fighter. All of these things are under development now in the Department in various stages and we are trying to make acquisition reform the very foundation of those developments.

The next chart, please, Matt. This is a chart that you are familiar with. I am not going to dwell on this, but it makes the point that you made, Mr. Chairman, that if you go back to 1985 and you look at where we were in those days, the bill payer has been research and development [R&D] and procurement, and you are ab-

solutely right about that. I think the good news, though, between 1996 and 1997 is also what you pointed out, is that our levels are approximately stable.

We have tried to keep those accounts as stable as we could, and in terms of percentages, they are approximately stable. We had 21 percent of our budget in 1996 was procurement and it is 22 percent in 1997. R&D was 11 percent. It declined 1 percent down to 10 percent. So the levels between 1996 and 1997 in the Navy are approximately what we ended up with at the end of the year, but these are substantially below where we were 10 years ago and we need to move up.

The next chart, please. Acquisition reform is something that is near and dear to my heart, and as you know, Mr. Chairman, when I was on the National Security Council staff, I was President Reagan's representative to the Packard Commission. I might note to the Members, those of you that have not been aware of it, Dave Packard passed away 2 days ago. I was very saddened to hear that. He is a great American, served his country in many capacities.

When he was the Deputy Secretary of Defense was probably the beginning of acquisition reform as we know it in modern times and he came back during the Reagan administration and led that wonderful panel. Dr. Perry, our Secretary of Defense, was on that panel, as were a number of other distinguished Americans in the business and defense community. That has been the foundation of the acquisition reform we are pursuing to this day.

For me, as a person who has been away from acquisition for a while, as Congressman Dellums knows, because he and I worked together when I was in Brussels and had some wonderful times together. I was the commander of our forces in the Brussels area for 4 years and then I was on the staff of the Armed Services Committee, and then to come back into the building, the message that I would like to deliver to you, Chairman Hunter, and to the others who have been interested in acquisition reform on this committee is the Navy is taking this very, very seriously and this is not something I can take credit for because they were doing it before I got there.

I am just very pleased to report to this committee that it is alive and well. We are working these issues hard in the Navy/Marine Corps team. Some of the things you see on that chart are hard to do, but we are working them as best we can. Program stability is particularly hard to do when the budgets are declining, but we are working that one.

We have made wonderful, wonderful progress in using commercial off-the-shelf equipment. That is our hope for the future in terms of capturing rapidly changing things in the state of the art, like electronics. We are going to be using commercial off-the-shelf equipment everywhere we can across the board.

Getting rid of specs and standards, I am very happy to report to this committee that I have finally reviewed the spec package on the new LPD–17 Program, which is going out for bids. We started with 1,000 military specs and we have it down to zero. We are going to put that request for proposal [RFP] on the street without a single military specification in it. That is a very significant and important accomplishment and I am very proud of that.

We are also trying to partner with industry and develop integrated product teams, which are the wave of the future. I think we have a good record on this, sir, and I would be glad to meet with either of these subcommittees in the future to go into more detail.

Let me show you the next chart. These are just a few of the examples that we are very proud of. Our F/A–18E/F Program won the first-ever DOD Acquisition Excellence Award and we have been doing acquisition reform in some of our undersea programs. One in particular there, the SQQ–89, the unit price by doing acquisition reform fell from $30 million to below $5 million a copy. That is a pretty significant savings, and as all of you know, we need more and better equipment in our undersea warfare programs.

Then there is my favorite down at the bottom. I am very proud of that. It said when we wrote this chart zero military specs, if possible. That RFP is going out without any military specs in it. We may have to put some back in later if our contractors ask for them, but we are not asking for them, and that is an important accomplishment.

Let us move on, Matt. In our air programs, this is just a quick summary of what we are doing. Our budget request is for 12 aircraft on the F/A–18E/F Program. That program is on schedule, under cost. It is underweight at this stage of its development and it appears to be an outstanding success.

The V–22 Program is doing well. We are going to go into that in a lot of detail, so I will not dwell on that.

We are a participant in the Joint Strike Fighter Program with the Air Force, and the Navy, the Marine Corps, and the Air Force are all working together to keep that program going. If I would say one thing about Joint Strike Fighter, we have to keep that program on schedule. That is the wave of the future in aviation and we cannot let it slip.

The next chart, please. This is a quick summary of our ship programs. We are not going to talk much about *Seawolf* today, or at least I did not think that was what you wanted to talk about, but there is a message to deliver to the committee today and that is that we are staying under the congressional cost cap, but I would tell you all we are under that cost cap by a razor's edge.

This is one of the things, the first thing I did—my dad was an old Chief Petty Officer in the Navy and he always said, Son, whenever you take over a new account, be sure and do the inventory. I did when I got there and took a close look at this cost cap. We are under it, but we are under it by a razor's edge and I will try to keep this committee and the other committees informed of where we are on that cost cap.

The new attack submarine, that is the last part of our presentation today and there are a lot of issues there, so I will not dwell on that.

On the DDG–51 Program, I would like to say, sir, that we are following this committee and your counterpart in the Senate's direction, which is to try to wrap the fiscal years 1996–97 programs together so we can buy six ships and buy the 2 years in one procurement. We have a reprogramming up here on the Hill of $104 million to get us started on that, which is to buy the advanced procurement for the third ship in fiscal year 1996, and by buying these

ships in this 2-year package, it allows us to save $300 million. We very much appreciate the leadership of this committee in setting us into that posture so we could buy these ships over the 2-year period.

Some people have told me that there are people on the Hill who are trying to say that that reprogramming is not being supported by the Department. I am here to tell you in unequivocal terms, we do support that reprogramming and we need that money to get this two-ship program started and we are very grateful to the leadership of this committee for setting that up.

The next slide, please. Moving quickly, because we have a lot of ground to cover, these are some of the programs for the future. The smart ship, the credit for the smart ship clearly goes to our innovative Chief of Naval Operations, Adm. Mike Boorda. He is the inspiration behind this. The idea here is to get the crew off of the ships, get the crew sized down using modern technology and automation, because over the life cycle of a ship, the cost of the crew is between 60 and 80 percent of the life cycle costs. So if we can get crew size down, we could save a lot of money.

On the arsenal ship, this is a new and innovative approach. We are using acquisition reform, every piece of acquisition reform that I could think of. As you know, Mr. Chairman, Dr. Kaminski was the leader of the F–117 Stealth Fighter Program. I had the honor to work in Paul's shadow as a helper to him when he set that program up and we are trying to set this program up similar to that one. It is going to be kind of a skunk works operation. We are going to have a minimum number of crew. We want to keep the crew below 50.

It is a joint program between the Navy and Defense Advanced Research Projects Agency [DARPA] and we are going to make cost an independent variable. In other words, we are going to set a cost for the development of the first ship and we are going to be a be all you can be ship for that cost. We will clearly try to hold the military specs and other encumbrances down to zero on this one, as well.

CVX–78 is our next generation of carriers. The message to the committee here is, ladies and gentlemen, we have to get started on this program. This is the next carrier, the next new class of carriers. Our plan would be to do the research and development that we need to do so that we can lay the keel on this ship in 2006. She will go to sea in 2013 and she is due to last 50 years. That means she will not come out of the inventory until 2063, and her sister ships, if we build a number of ships of this class, would likely be in service all the way to the end of the next century.

So the research and development decisions we make today on this ship have to last this country 100 years, and we are going to do this with open architecture and do the best we can to use acquisition reform here.

SC–12, our new surface combatant, it is similar to the CVX–78. The message there is we need to get started on the research and development now because we need to get this into the inventory in the first decade of the next century to replace our DDG–51 fleet.

The next chart, please. These are our No. 1 priorities for the Marine Corps. First on the list is the AAAV. This is our new amphib-

ious assault vehicle and it is on schedule, under cost. It is in source selection right now and the program is doing well.

The next one is light weight 155. This is a joint Marine Corps/Army program. There is a lot of acquisition reform there. I have reviewed it several times. It is also in source selection. We have two British-American teams and one all-American team bidding on this one. This will allow us to increase our rate of firepower with a lot less weight on the battlefield.

We have our medium tactical vehicle remanufacture program. This is another success story in which the Marine Corps has worked with the Army to get the price down and they are doing an excellent job.

I might say, in general, I am very proud of my Marine Corps acquisition team. They have done a wonderful job. You may have read in the paper recently that the head of the Marine Corps Systems Command, Gen. Carol Mutter, is getting her third star. She will be the highest ranking woman ever in the Marine Corps and she has done a wonderful job here.

Finally, the Predator, a short-range assault weapon for the Marines is another piece of acquisition reform and we have been able to get the cost down significantly.

The next chart. Mine and undersea warfare is an area that the Chief of Naval Operations [CNO], the Secretary and I are trying very hard to emphasize. We have had to send over a mine warfare plan for the last few years and I can tell you that this year's plan is the best that we have sent over in recent years. A lot of people in the Navy worked hard on this. We have been able to certify that the plan is funded in fiscal year 1997 and we are working hard to fund the out years and your support on this committee would be helpful.

Antisubmarine warfare is also a mission area that we are very serious about. We have a number of developments there and it is one of the Department's highest priorities.

The next chart, please. C4I, three very, very important programs for us. The first one is a cooperative engagement capability. Many of the members of this committee are aware of the "Mountain Top" demonstration, I believe, that we have been over and briefed some members individually on that. This was an Advanced Concepts Technology Demonstration [ACTD] that was worked out cooperatively between the Department and the Congress in which we demonstrated that we could acquire a low-flying cruise missile over the horizon using airborne assets, pass the targeting information down to a group of ships, and do an intercept before the ships could actually see the incoming missile break the radar horizon. It was a wonderful success. We are working hard on the program and we need your support to keep it going.

Ballistic missile defense is on track. This is a very controversial program in the Congress as to how much assets should go into this program and we are pressing ahead in cooperation with the Department of Defense at a prudent and rapid pace.

The final bullet on this chart is one that I continue to need and would ask for particular support from the members of this committee. That is the global broadcast service. This is a program which will allow us to use direct broadcast television to move information

out to the fleet. Roughly, what this does is it allows the ship commander the same kind of increase in information that you would get if you moved your television set from those little rabbit ears that we used to have to modern cable television, where you can get 100 or 200 channels. It is an enormous growth in the ability to move information out to our ships at sea.

We would normally lease this from commercial services, but as you can imagine, commercial vendors do not beam their satellite broadcasts to the middle of the ocean because there is nobody out there to pay the bill. They only beam them to the land masses. Where we have troops ashore, like we do in Bosnia, we are leasing commercial direct broadcast to increase our information flow out to the troops.

But at sea, we need dedicated satellites to do that and we have come up with a very innovative program in which we put transponders on three launches that we had already bought and paid for in the Navy. There is a lot of money to be saved. We have a reprogramming up here on the Hill right now and your committee has been very supportive of moving that reprogramming and we thank you for that support and would hope that we could get that approved soon, because if we do not get it approved by around the first of April, I have some real serious contract problems that I have to deal with because we are going to miss our launch window.

Let us go on to the V–22 and quickly go through that. Mr. Chairman, I do not know if your members want to ask any questions on this specific briefing as we go through. I will move through it quickly. It is your discretion as to how you want to do that.

Mr. HUNTER. Mr. Secretary, what I would like to do is when we have a single program that we are focusing on for a period of time is let the members kick this thing around in an informal manner and ask questions as we go so that we air all the issues before we leave it here. So just go right ahead.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. And to the members, if you have a particular question as we go through the briefing, just turn your light on and ask it and we will try to proceed in an informal manner so we can answer all the questions.

Go ahead.

Mr. DOUGLASS. Matt, would you go to the first chart here. These are the performance requirements on the V–22. Obviously, Vertical Take Off and Handing [VTOL], get there a lot quicker, carry a much heavier payload a lot longer distance, and some of the other attributes that you see there. This military requirement has been fully validated by the Joint Chiefs.

The next chart, please. This is why we need it. Our older helicopters are getting old and coming out of the inventory. They do not have enough performance for what we need for the future. Keeping these older helicopters in the inventory costs a lot of money.

Mr. HUNTER. Mr. Secretary, just for the membership, the V–22 travels approximately what, about 350 miles an hour?

Mr. DOUGLASS. I think that is right.

General OSTER. Two-hundred-and-seventy.

Mr. HUNTER. Two-hundred-and-seventy?

General OSTER. Yes, sir.

Mr. HUNTER. So it travels 270 miles an hour and holds roughly 30 troops with gear?

General OSTER. Twenty-four combat-loaded troops.

Mr. HUNTER. Twenty-four combat-loaded troops?

General OSTER. Yes, sir.

Mr. HUNTER. And the reason for it is to be able to travel as quickly as possible that distance, if you are making, for example, a Marine assault, is to get past that shoreline and into your positions when you are taking a piece of territory. The helicopters that it is going to replace right now are primarily what, CH–46?

General OSTER. Yes, sir.

Mr. HUNTER. And those aircraft, they will go about how fast?

General OSTER. About 120 knots, sir.

Mr. HUNTER. About 120 knots. So we are basically doubling the speed in which we move our Marines from over the horizon, that is, the landing ships that are the Landing Platform Dock [LPD] or Landing Helicopter Dock [LHD] coming in, basically across a battle front into positions that they have to hold in whatever particular type of assault they are making, but we get them there as fast as we can and that is what this allows us to do, move them in quickly.

General OSTER. Yes, sir.

Mr. HUNTER. And the CH–46's are quite old at this point, are they not? When was the last one built?

General OSTER. The last one, I think, was built in 1969 it started and actually delivered to us in 1971.

Mr. HUNTER. So you have an aging fleet of choppers that do this.

General OSTER. Yes, sir.

Mr. HUNTER. The Marines want this. This is their No. 1 priority, and that is why we are getting this briefing. I think it is also one of Mr. Weldon's No. 1 priorities.

Go right ahead.

Mr. DOUGLASS. Yes, sir. I would tell you, I had the pleasure of being in a hearing with the Commandant, General Krulak, over in the Senate a couple of days ago and he gave a wonderful dissertation on operational maneuver from the sea. You have done a pretty good job there of summarizing it yourself, Mr. Chairman. Basically, we want to be able to use our amphibious forces and attack from over the horizon and have a lot of flexibility in choosing the place where we go ashore. This program is the aerial part of our attack and the Advanced Amphibious Assault Vehicle [AAAV] allows us to move the troops on the surface and exercise operational maneuver from the sea.

Let us go to the next chart, please. One of the problems that we have had is a lot of people think this program is fairly immature. In fact, we have gotten a fair amount of experience under our belt and we are in low-rate initial production now. This chart just gives you some of the things that we have been able to demonstrate so far in the test program. It is doing very well.

The next chart, please. This is what we are continuing to do, reducing the risk, going through our test program. We have our budget request up here now for the first four low-rate initial production. We are validating our production process and we are integrating the program with the R&D program we have for the special

operations forces, the CV–22 mission, and doing a significant amount of acquisition reform on this program, sir.

The next chart, please. I will give you the schedule here. You can see our budget request is for 1997. That is where the four low-rate production block begins there. You can see where we are vis-a-vis the other yellow blocks nearing the end of the test program.

The next chart, please. This is kind of a summary. It is on track. It is meeting its schedule and performance objectives. It is a joint program. You can just look at the other bullets there. I will be glad to answer any specific questions you might have on it, Mr. Chairman.

Mr. PETERSON. Mr. Chairman?

Mr. HUNTER. Yes. Why do we not just go ahead with members' questions. Yes, Mr. Peterson?

Mr. PETERSON. What is the total buy and what is the comparative unit number difference between the 46 and this as to replacement?

Mr. DOUGLASS. I will let Joe answer.

General OSTER. Sir, the total buy is 525 aircraft, of which 425 are Marine Corps aircraft. I will have to ask General Magnus on how many 46's we have bought.

General MAGNUS. The CH–46, of course, was originally bought mainly for the Marine Corps but also for the Navy during the Vietnam era. We purchased about 600 of those aircraft. A significant attrition, of course, occurred during the Vietnam war and subsequently—

Mr. PETERSON. I am sorry, I cannot hear you.

General MAGNUS. Approximately 600 aircraft were bought for the Navy and the Marine Corps during the Vietnam war. We have lost a significant number of those, of course, during that conflict and on peacetime attrition since then. The 523 V–22 aircraft will provide 425 aircraft for the Marine Corps, and this was looking at a 20-year buy for the Marine Corps. So that includes a peacetime attrition. We will replace all of our CH–46's—we have 18 squadrons of CH–46's remaining—and we will also replace all of our CH–53E's that are based in Hawaii now. So that is 22 squadrons of V–22's plus a training squadron.

In addition, the Navy will be buying 48 aircraft well in the out years for future combat aircraft and, of course, the U.S. Air Force Special Operations Command is pressing for this aircraft for 50 to replace a significant number of their aging platforms.

Mr. PETERSON. Would you assume, then, it is a one-for-one replacement, based on the numbers you have currently in inventory?

General MAGNUS. That is correct, except that the existing aircraft are so well below our performance requirements that we would actually require a much larger number, but since we stopped buying them during Vietnam, we just do not have enough aircraft to do our wartime missions.

Mr. PETERSON. One last question. When would the last 46 be phased out?

General MAGNUS. Right now, the last 46 would be phased out about the year 2023, based upon the fiscal constraints that we have on this program.

Mr. PETERSON. And that is really the point, Mr. Chairman, I want to make. That last airplane came off the line in 1970?

General OSTER. Nineteen-seventy-one.

Mr. PETERSON. Nineteen-seventy or 1971. They are going to carry this thing out to 2020-plus. Those airframes, you can only remanufacture them so many times before they just do not exist anymore.

I think the point that Mr. Weldon and others made previously, there is a great case here for accelerating this program to whatever degree we can, because it just does not make any sense to try to do with what we have for that length of time.

Mr. SKELTON. Mr. Chairman?

Mr. HUNTER. Yes, Mr. Skelton, you are first, and then we will go to Mr. Bateman and then Mr. Spratt. Go right ahead, gentlemen. Just proceed informally here.

Mr. SKELTON. General, you kind of slid over it, an integrated joint program. Would you give us some details on that, please?

General OSTER. Yes, sir. It is a joint program. Right now, the two developmental aircraft that are being developed is the MV, the Marine Version-22, and the CV, which is the Special Operations Command replacement for about 8 of their special mission aircraft now.

Also, it is joint in that the Navy is onboard for their Search and Rescue aircraft, but that comes much later into the program. We also expect that as the utility of this aircraft is demonstrated, that there will be other interest in it as we move into the 21st century, sir.

Mr. HUNTER. Mr. Bateman?

Mr. BATEMAN. Thank you. Could you give us, not necessarily today, but furnish us with what x-number, y-number of dollars would do in terms of accelerating the program and perhaps holding down unit cost and saving money?

General OSTER. Yes, sir. We have developed profiles at 24 a year and 36 a year. Thirty-six a year would save in fiscal year 1995 dollars around $8 billion and would deliver the entire program exactly 11 years earlier. We are also on the hook to deliver that formally as a result of congressional language last year and we are working that issue within the Department now and we will present those options.

Mr. BATEMAN. We would be very happy to have that information. I would only add parenthetically that I could probably make the same request about 2 dozen other programs where we could save money and lower unit cost if we can find the money.

General OSTER. Yes, sir.

Mr. DOUGLASS. We also, Mr. Bateman, are going to look at a multiyear approach to this program, a multiyear procurement, because we may be able to substantially save some money and plow it back into the program. It is a little too early for that right now because we are just in low-rate production, but in the out years, I do not see why we could not do a multiyear on this and save substantial funds.

Mr. HUNTER. Mr. Sisisky, unless Mr. Spratt has a burning followup question to Mr. Bateman. Gentlemen, as we work this thing informally, to all members, junior members included, if you have a question that is right on point or that follows somebody else's

question, let us just ask it. The point here is to get briefed and not necessarily to follow a strict order of questioning. We really just want to get a briefing with as much information as possible. I see Mr. Longley, our great Marine, is typing questions into his computer down there. I just wonder when he is ready to go.

But Mr. Sisisky, go right ahead, and John, you are next.

Mr. SISISKY. My question is not on the V–22, which has already been asked, but I looked through this, Secretary Douglass, and you mentioned CVX–78, but I did not hear any mention of CVX–77. As I understand it, in the bottomup review, we talked about 12 carriers and I remember vividly saying that we are going to be out of area for 1 month or maybe 2 months in transit time. But as I understand it, the Mediterranean, we are going to be out at least 5½ months and that could slip even longer.

Mr. DOUGLASS. Yes, sir. We did not——

Mr. SISISKY. It leads me to believe that CVX–77, which would be retiring in 2005 or whatever it is, the last carrier without nuclear capability, but it just seems to me that CVX–77 is not only important but we had better look at do we have enough carriers.

Mr. DOUGLASS. Yes, sir. We appreciate you pointing that out. The reason why we had CVX–78 on there was because it is a new R&D program. The CVX–77 right now, we call it a transition ship from the existing class to the next class, but in the main, it is going to be primarily the same as the existing class. I have a very small amount of R&D for it. I was just trying to show the committee what the new R&D ships were——

Mr. SISISKY. I know you have very little.

Mr. DOUGLASS. You are very correct, sir. We care a lot about that carrier and we hope that we will be able to afford it when the time comes.

Mr. SISISKY. There is another question about——

Mr. HUNTER. The gentleman has more V–22 questions. Go ahead, Norman.

Mr. SISISKY. I am going to talk about Marine aviation. As I understand it, we are standing down with the Harriers. Am I correct in that, or do we——

General OSTER. No, sir. No, sir.

Mr. SISISKY. How many crashes have we had with that aircraft?

General OSTER. I am sorry. We did have a safety standdown. I misunderstood the question. Yes, we did have a safety standdown.

Mr. SISISKY. What kind of fleet do we have with the Harriers? I know they are very expensive to redo. I know we need to redo them, but it is a very expensive aircraft.

General OSTER. We have 7 squadrons, about 100 total aircraft.

Mr. SISISKY. You have lost eight aircraft in the last year or two?

General OSTER. I am not sure about that number.

Mr. SISISKY. That is about 7 percent.

General MAGNUS. Mr. Chairman, Mr. Congressman, I am Brig. Gen. Robert Magnus, Assistant Deputy Chief of Staff for Aviation.

In this fiscal year so far, we have lost four aircraft and, of course, is the reason why we have stood down to reexamine our operational and maintenance procedures. Unfortunately, we are unable to find a common thread between these mishaps and the recent mishaps are still under investigation.

The Harrier, because of its low-altitude tactical environment, is operating in a demanding environment. We are confident that the Harrier that we are doing, particularly with the remanufacture program, is going to address the concerns in terms of engineering design, et cetera, with these aircraft. We have 7 squadrons with 20 aircraft each for the combat mission. That is 140 aircraft plus our training squadrons. We will replace the Harrier with the Joint Strike Fighter in the year approximately 2008.

Mr. SISISKY. What is the cost of remanufacturing that, because this is a big item. This is not a little item. Do you remember what it is?

General MAGNUS. I would have to give you the precise figure for the record, sir, but the cost of remanufacture is approximately 80 percent of the cost of a new aircraft and that is the reason why we went with that decision vice buying a new production since we did not have an inventory issue. This was a warfighting capability issue for remanufacturing.

Mr. DOUGLASS. Mr. Sisisky, just to give you an idea, in 1997, we have about $300 million in the budget and we are going to get 10 remanufactured airplanes out of it, so——

Mr. SISISKY. That is $30 million.

Mr. DOUGLASS. Yes, sir. We figure, as the General said, it is only about 80 percent of the cost of buying a new one. I have been out there to McDonnell Douglas, looked at that remanufacture line. It looks like a good operation to me. We are looking at seeing if we could not maybe buy out the rest with a multiyear to save some money there, as well.

Mr. SISISKY. What got my attention is what I read in the paper about the crashes.

Mr. HUNTER. I thank the gentleman. Members are interested in it. We are going to have a hearing on the F–14 mishaps. We may want the Marines to talk about their aviation problems, also.

Let us go back to V–22 and really air this issue on V–22 before we leave it. Mr. Spratt?

Mr. SPRATT. Secretary Douglass, what is the program unit cost for the V–22 at its present rate of buy?

Mr. DOUGLASS. I do not have it memorized, sir. Do you know?

General MAGNUS. The total program cost in then-year dollars is about $50 billion for the entire buy at 523 joint service aircraft.

Mr. SPRATT. Can you do the long division for me? What is that on a unit basis?

General OSTER. The average unit flyaway cost, sir, at the 200 aircraft is under $40 million per copy, I think $38.8 million.

Mr. SPRATT. There is a definition of program unit costs, all costs included. Flyaway does not include that. Can you give me the program unit costs—unit costs, not total program costs for the 500?

General OSTER. Yes, sir. I would be glad to give you that for the record, sir.

Mr. SPRATT. All right, sir.

Mr. Douglass, when we talked some years ago about redesigning the SAR, I always wanted to put a line in there that would include the cost at an economic rate of production.

Mr. DOUGLASS. Yes, sir.

Mr. SPRATT. Some sort of optimalized production. Could you do us an analysis of that?

Mr. DOUGLASS. Yes, sir, we could.

Mr. SPRATT. Let me ask the next question. If we give you more money to hasten the RDT&E program, is there more money coming down the pipeline to sustain that speedup? Is that not a fundamental dilemma? If we cannot sustain it, it does not do any good to speed it up.

Mr. DOUGLASS. On this program, sir, we could use a modest amount of RDT&E money to make sure that we are financially healthy as we go through the rest of our test program and begin our low-rate initial production. The real cost of acceleration, though, is in just bellying-up to the bar and saying, we are going to buy them quicker in the out years.

The other way I can save some money, and I am certainly going to look at this, is in a multi-year procurement, in other words, locking in maybe 5 to 7 years worth of procurement. As you know, the Air Force has proposed a multi-year on the C–17 and they were able to get a pretty solid savings out of that.

So I am going to go back and work some options. It is a little early to do that right now because if you start a multi-year while you are still in low-rate production and you find out you have a production problem, you are kind of stuck.

Mr. SPRATT. But is not the question really one of sustainment, whether or not we can come up with the out-year money to fund the procurement?

Mr. DOUGLASS. Yes, sir, it is, and it is procurement money in the out years. It is not an up-front. We asked for four low-rate this year. We could maybe bump that up to six, but that is not going to change these big numbers in the out years. That just means that we could go a little faster now, and if the committee wanted to go faster, I would not recommend you go more beyond moving from four to six.

But we would also probably make this a better program if we had a little bit more R&D money.

Mr. SPRATT. Are there any other variations that are developing missions for this, like a COD mission, a carry-on-board delivery mission, or other requirements that it might serve? It is not a heavy-lift vehicle, it is a medium-lift vehicle.

General OSTER. Yes, sir, 10,000-pound lift capacity.

Mr. SPRATT. And the CH–53 is a heavy lift, is it not?

General OSTER. The 53–E, sir, is a heavy lift.

Mr. SPRATT. Do you have to replace that in order to have the heavy lift capability on top of the V–22?

General OSTER. No, sir, and interestingly, as we are looking at it into the 21st century, one of the programs that we are focused on in this budget is the development of the light-weight 155 howitzer, which is under the 10,000-pound cap, and we are really sort of wrestling with the future. Is there a need for a heavy-lift helicopter replacement when the E's come to the end of their service life? We would like to try to develop the tactics and techniques in weaponry we need to move vertically and keep it under that 10,000-pound cap, and if we can do that, then we do not have to have a follow-on heavy-lift helicopter.

Mr. SPRATT. Thank you very much.

Mr. BATEMAN [presiding]. Further questions from members with regard to the V–22? Mr. Abercrombie.

Mr. ABERCROMBIE. Secretary, I am going to bring this up again, and Mr. Chairman, I am just making my statement here. There is a surreal quality to all of these hearings and briefings that we have with respect to the money. What I want to know very, very simply is, and I guess you can do this yes or no and you could amplify on it later and maybe take it up with others in the DOD.

I have advocated for a while now about capital budgeting and separating operational, in the DOD, separating the operating budget from a capital budget, particularly here with this V–22, but also it recurs to me because of Mr. Sisisky's questions.

Is our research, development, and acquisition area, whether it is in the Navy or elsewhere, seriously addressing the question of whether or not capital budgeting is something that we could do? It sounds good to me. I am not going to pretend that I have some magic formula here because it may not produce even the kind of savings necessarily, but I think it might produce the kind of capital that you need to do what you are doing rather than cash financing, in effect, all of this.

The reason that I bring this up to you is that we are here at the authorization stage and I am content that we take a bipartisan approach on this committee, particularly in the area of procurement and acquisition and the research and development that is necessary to produce the decisions that need to be made about acquisition and production.

So my question is, has there been serious consideration or is there the possibility of taking at least a study underway to consider capital budgeting in order to try to address this so that we do not have this kind of clash and conflict over where we try to decide who to hurt?

Mr. DOUGLASS. I do not know the answer to that, Congressman. I will get a good answer for the record and get back to you. I do know that there is a very strong emphasis in the Department of the Navy on looking at the total cost of ownership of weapons systems, which includes the cost of capital up front to buy the new equipment and the cost of operating them. You have heard a couple of examples here today about if we buy new equipment, how much old equipment can we get rid of?

On the LPD–17, for example, Joe, how many ships are we buying total there, about 19 or 20?

Admiral LOPEZ. Yes.

Mr. DOUGLASS. And they replace 41 older ships, and the crews on those smaller number of ships is like 3,000 or 4,000 less crew to give us the same military capability. That means that in order to own those ships and operate them for the future and deliver the same amount of military capability to our fighting forces, our costs drop substantially. So we are trying to be innovative.

Mr. ABERCROMBIE. I understand. I am not disputing any of that, and please forgive me. That is not what my question is.

Mr. DOUGLASS. I suspected it was not, sir, but——

Mr. ABERCROMBIE. I am not trying to——

Mr. BATEMAN. Would the gentleman suspend?

Mr. ABERCROMBIE. Yes.

Mr. BATEMAN. The ground rules that were given by the chairman when he retired was we wanted to complete the questioning that was specific as to the V–22.

Mr. ABERCROMBIE. That is what I am trying to do.

Mr. BATEMAN. Then we will start a round of questions on general questions from members in the normal order, following which we will then have a series of questions until all members have been heard with all questions regarding the submarine program.

Mr. ABERCROMBIE. I understand. I should never have referred to Mr. Sisisky. I know that. That is always a mistake.

But I just meant it as a parallel in this program. When you listen to the observations that Congressman Peterson put forward, absent some kind of capital budgeting in the V–22 program, if I understand it correctly, and everybody from General Gray through General Krulak has told me to my face that this program is the most important acquisition program as far as the Marine Corps is concerned with respect to getting troops safely to where the Marines want them to be.

I cannot see, absent capital budgeting or at least some consideration by yourself, how you are going to be able to do that and whether or not we will find ourselves in what I have characterized as surreal conversations and a total disconnect between what is stated as being necessary and what is capable of being done within the confines of the present budgeting process.

Mr. BATEMAN. Thank you, Mr. Abercrombie, and I think the Secretary says that he will get back to you with an answer on the record, and it is an answer we all need to have and the Navy needs to give a great deal of thought to.

Mr. DOUGLASS. Yes, sir.

Mr. BATEMAN. With that, does anyone have questions with respect to the V–22?

Mr. CUNNINGHAM. Mr. Chairman.

Mr. BATEMAN. Mr. Cunningham.

Mr. CUNNINGHAM. Just real quickly, Mr. Chairman, Mr. Secretary, is there anything, or are the services working with like commercial interests for V–22? For example, I think it would be outstanding for an antidrug type airplane, a SAR airplane for outside the Marine Corps for search and rescue, for commercial application in the short fields and so on that would reduce those unit costs.

Mr. DOUGLASS. I asked the same question when I got over there. It would not be the services doing that, it would be the producers that are doing it. I certainly hope they are. One of the things that I feel very strongly in is trying to stimulate commercial acquisitions of the systems that we use in the Department of Defense.

I am a very, very strong advocate of revitalization of the American shipbuilding base for exactly that same reason, sir. I think if we could build more ships in this country for the international ship trade, we would be able to get the price for the Navy down substantially. So I spend a lot of my time on this.

In this particular thing, just as an acquisition guy and a technology expert, I think this airplane is going to be attractive to certain segments of the aircraft industry in the future. I certainly

hope the producers are out there marketing it as much as they can, and I would certainly be in favor of that.

General OSTER. Sir, we have always believed very strongly that once we delivered, and now we have the LRIP production started, that there will be tremendous interest both in the commercial sector and in related military such as counter-drug and so on and so forth.

Mr. DOUGLASS. And also perhaps selling these things to our allies. A lot of our weapons systems that we have in production today are being bought by our North Atlantic Treaty Organization [NATO] allies or other allies around the world and that holds the price down for us substantially.

Mr. BATEMAN. Let me first apologize for Mr. Abercrombie for misspeaking his name. I have a dear, dear longtime friend named Abernathy.

Mr. ABERCROMBIE. Mr. Chairman, that is perfectly all right. I was afraid you were going to say Tanner. [Laughter.]

Mr. SISISKY. Let me just ask, who owns the R&D on the V–22? We plowed a fortune into that thing. Do we own the R&D?

Mr. DOUGLASS. I am not sure what you mean by who owns it. It is managed by the Department of the Navy and the Marine Corps. You mean who owns the intellectual property rights to the design?

Mr. SISISKY. Right.

Mr. DOUGLASS. I assume we do, but in general, manufacturers who build a class of airplanes for us can use that design information to sell commercially. For example, you can look at a lot of Boeing's airplanes. They originated as Air Force airplanes. Do you remember the, I think it was the 707 was a derivative of the original KC–135.

Let me get you an answer on the record for that, Mr. Sisisky, because there may be some legal technicalities here that I just am not familiar with, but——

Mr. BATEMAN. Mr. Secretary, I think it would be well to have your general counsel respond to that for the record.

Mr. DOUGLASS. I do not want to get over my head on that one.

Mr. BATEMAN. And we do not want you to give away anything.

Mr. DOUGLASS. Exactly.

Mr. BATEMAN. Mr. Skelton.

Mr. SKELTON. I realize we are going to get into the submarines a little bit later, but would one of you, maybe Admiral Lopez, whoever, first give us the official Navy policy regarding acquisition of submarines and then also I would like to ask about the F/A–18E/F. As I understand it, there are 1,000 total planned procurement and you are only asking for 12 this year. In connection with that, what is the Marine Corps request for any F/A–18E/F's?

Mr. BATEMAN. If the gentleman would suspend a moment, Mr. Hunter has a very deep, abiding interest in the submarine questions and has asked that we withhold on that subject until he returns. But if you would respond to the second question that Mr. Skelton asked.

Mr. DOUGLASS. On the E/F, the E/F is in low-rate production right now, sir. We are just starting up that production curve and the program is doing very well.

Jeff, do you want to answer the part about the Marine Corps' position on the E/F?

General OSTER. Yes, sir. With the joint strike fighter development coming along the way it has, it has presented a kind of an interesting dilemma for us in that it now appears that the joint strike fighter is going to be able to deliver an Advanced Short Takeoff Vertical Landing [ASTOVL] version of that aircraft by about 2008. We were not scheduled in the long buy of the E/F program to receive our initial airplanes out of that program until the mid part of the next decade as it is. So we are now carefully reviewing this.

If the Joint Strike Fighter Program stays on schedule, and we believe that is very essential for this Nation, then we would transition from our——

Mr. SKELTON. Have you ever known of one like that to stay on a schedule, General? I think you all may be buying some trouble if you do not take a good look at this particular system. As I recall, the Marine Corps vied very hard to get on deck with the sailors that were flying on and off the aircraft carriers. You may be counting yourself out of the business.

General OSTER. Sir, we have, as you know, four squadrons aboard. If the Joint Strike Fighter Program slides to the right, we would then stay with the E/F program. As I said, sir, we are not scheduled to get our first aircraft until the middle of the next decade.

Mr. SKELTON. Do you not think you ought to put a placeholder in there?

General OSTER. Sir?

Mr. SKELTON. Do you not think you ought to put a placeholder in there now just in case the inevitable happens?

General OSTER. Yes, sir. We are included in the acquisition program at this time.

Mr. PETERSON. Mr. Skelton, would you yield?

Mr. SKELTON. Yes.

Mr. PETERSON. On that point, you are at the tail end of the E/F. You are on the tail end of the joint strike fighter [JSF], too, I would assume. Are you on the front end, then? Are you suggesting that the Marine Corps gets the first buy or early buy, because otherwise what Mr. Skelton is talking about is very true. You really are placing yourself in jeopardy because your placemat traditionally on acquisition is on the end.

General OSTER. We think that in the Joint Strike Fighter Program that if the schedule stays the way it is and we deliver the three different variants of the program, that the Marine Corps need would be one of the first ones that would be filled out of the acquisition, because again, the acquisition strategy will depend on what the replacement schedules are for the aircraft that are going out of the inventory as opposed to a service order of buy.

Mr. PETERSON. I have seen the Marine Corps suffer with some clunkers for a long time after everybody else got the new stuff, even though I think that they had probably a better case. But Secretary Douglass might want to address that, whether or not he could get some assurances that the Marine Corps could delay. I think there is some economy here if they do not buy the E/F, if

they are willing to wait, but they have to have some justification for that delay that they will get an early buy on the JSF.

Mr. DOUGLASS. The one thing that I could add is I think there is very solid agreement among all of us here. We really do not want to see JSF slip. I am very concerned about it. I have made my concerns known to Paul Kaminski, the Acquisition and Technology Under Secretary, and Paul is in complete agreement with that.

My judgment is that since Paul got there, he has really improved the JSF Program enormously. You know, joint programs are not easy, Mr. Chairman. I, as a young officer, lived through the joint cruise missile project in its early days and there is a letter on the wall of my office that I show my young officers in which an Air Force general wrote to the admiral—I was an Air Force officer working for an admiral—and he pretty much described me as the worst major in the U.S. Air Force and tried to break my career because I was loyal to the admiral to whom I had been assigned rather than loyal to him.

We have come a long, long way since those days back in the 1970's where Congress was leading the way and getting us into these joint programs and we know how to do it now and the management of it is a lot better. We have people like Dr. Perry and Dr. Kaminski up there running them, but they are still very difficult programs to get three services coordinated and on the same path and working the requirements.

So we need to keep it on schedule. It is something all of us, I think, agree on.

Mr. BATEMAN. Next, with a moratorium on further V–22 questions and deferral of questions on submarines, the Chair recognizes Mr. Dellums.

Mr. DELLUMS. Thank you. Mr. Secretary, I would like to take you back to your charter C4I.

Mr. DOUGLASS. Yes, sir.

Mr. DELLUMS. I have two questions. First, I would like to——

Mr. DOUGLASS. Should we put it up, sir, for you?

Mr. DELLUMS. I have one in front of me, so it does not matter. I have two questions. My first question is, I would like you to explain to the subcommittee what is contemplated in your Global Broadcast Service.

Mr. DOUGLASS. Yes, sir. This is a system that allows us to move information from headquarters ashore out to the fleet. It is very similar to the direct—you know these little small antennas you can buy now for about $1,000 and put them on top of your house and you get 400 channels of television? It is essentially that.

Mr. DELLUMS. The main thing I wanted you to focus on was you mentioned that conventional wisdom would allow you to lease this from a commercial entity.

Mr. DOUGLASS. Yes, sir.

Mr. DELLUMS. But because they do not beam out to the sea, that you now have got a purely military requirement for this. The question that I wanted to ask is, why would not the military's desire to lease from a commercial company be financial incentive enough for them to beam out, assuming you are going to be paying them a lease payment.

Mr. DOUGLASS. It is a complicated answer, but I think the easiest way to answer it is the following. If you were to put up a system that could beam out to the sea, you would have to design a satellite, launch it, and get it up there. We have pending three satellite launches which we have already paid for, and that in itself is a very innovative thing. We do not pay the price until the satellite is up there and it works.

By taking and putting a transponder on those three satellites that can carry this information, all we need to do is build this little black box into that satellite and the launch is already paid for and the basic host satellite is already paid for.

So this is a shoestring program. The first step in getting this out to the forces was to lease what was available already from commercial vendors to get to our ground forces. The second phase is this little—this is really kind of a shoestring deal, actually. It saves a lot of money and we are doing it for a small amount and this covers not all of the oceans, Mr. Dellums, but the bulk of where we think we are going to be operating.

Then there is a third phase and the Air Force is in charge of that third phase, which would be a worldwide scheme for direct broadcast to all of our forces for the long term into the future.

So this is a kind of an interim step and we just happen to be fortunate that if we can get consensus among the committees in the Congress to give us a reprogramming so we can get started, we will come up with the money in the rest of our budget and we will be able to take advantage of these next three launches that we have planned over the next couple of years.

But eventually, we are going to probably go down the path that you are talking about here. Whether the Air Force leases or buys for that long term, you know, the whole world deal, I am not sure what they are going to do.

Mr. DELLUMS. Some thought is that if you eventually do go commercial, that you stay on the edge of technology because commercial people continue to improve it.

Mr. DOUGLASS. Right.

Mr. DELLUMS. And you do not put a system out there that becomes obsolete.

Mr. DOUGLASS. In general, I support that, sir.

Mr. DELLUMS. My second question goes to the issue of theater missile defense. The Navy is presently working on Navy upper and lower theater systems.

Mr. DOUGLASS. Yes, sir.

Mr. DELLUMS. My question is, will Navy upper and lower tier systems be accommodated within planned surface ship numbers or will the Navy's theater missile defense program be a requirement generator for additional surface ships? I think that is an important question from a budgetary perspective.

Mr. DOUGLASS. It is a good question, Mr. Dellums. My understanding is it will be accommodated within the existing surface force projection with the following caveat. You know, I mentioned that we are looking at the Arsenal Ship. Basically, what the Arsenal Ship is going to be is instead of loading strike munitions on cargo ships and carrying them into the theater of operations and unloading them somewhere into a depot and then reloading them

back on a smaller cargo ship and carrying them out to the fleet and then unloading them off that ship and putting them on the strike ships, we are going to put them on a ship where they can leave the port and go to the strike area and be launched right off the ship that takes them out of the depots.

This could be a ship that could carry as many as 500 to 1,000 missiles. The bulk of these missiles will be designed to provide strike forces for any deployed naval forces ashore, but we might—it might be a smart idea to put some of this upper tier/lower tier capability on one of those ships mixed in with all these other kind of missiles.

Other than that, our upper tier and lower tier program, to the best of my knowledge, will be placed aboard existing naval combatants and we are not going to buy any new ships just for that.

Mr. DELLUMS. Thank you very much, and thank you, Mr. Chairman.

Mr. HUNTER [presiding]. Mr. Bateman, thank you first for chairing the committee while I had to appear before another committee. Do you have any questions? We are going to have a chance a little later to work submarines, but do you have any questions that you want to ask?

Mr. BATEMAN. Mr. Chairman, no. I will withhold on any other questions since I will have a number regarding submarines.

Mr. HUNTER. We are going to save submarines for last because they are more fun.

Mr. DOUGLASS. We are ready to go if you are.

Mr. HUNTER. We want to let the other members air their questions in other areas.

Mr. SKELTON. Mr. Chairman, I have a general question that does not relate to submarines.

Mr. HUNTER. Certainly, sir.

Mr. SKELTON. The fiscal year 1996 defense authorization included $45 million to purchase 17 T–39's, training aircraft. Currently, the Navy leases them. The Navy failed to spend the money. You have been contacted three times, March 5, March 8, March 25, no answer. What is the problem?

Mr. DOUGLASS. Yes, sir. As a matter of fact, I have answered that, Congressman Skelton, and here is the problem. We were told by the Appropriations Committees that $45 million was available to go and buy these airplanes. We have several years of leasing still under contract for these airplanes. But then the authorizers, I assume this committee was part of the deal, turned around and gave us a thing that said you cannot buy them until the Under Secretary of Defense for Acquisition and Technology certifies to the Congress that it is a good deal and then we wait 60 days.

So my hands are tied. Until the Under Secretary makes that certification, I have one committee telling me to do it and the other committee saying you cannot do it until you get this certification.

So that is where we stand, and I have replied to the letter, sir. In addition, I have spoken to a number of your colleagues on the telephone and would be glad to pursue this further with you individually, because as you know, Mr. Skelton, we tremendously respect you and want to follow your directions wherever we can, sir.

Ms. DELAURO. Mr. Chairman.

Mr. HUNTER. We were going to save submarines for last, but Ms. DeLauro, if you have a question in another area.

Ms. DELAURO. It is not submarines.

Mr. HUNTER. Go right ahead, then Mr. Chambliss.

Ms. DELAURO. I have two quick questions because we have to go to vote. One, we talked about the CH–53E a little bit ago and we heard some discussion about how the lift requirements may be lower in the future. I just wanted to get a clarification here. Right now, the CH–53E is meeting our heavy-lift needs, is that correct?

General OSTER. Yes, the CH–53 is meeting our needs. It is the premier heavy-lift helicopter in the world and we are very happy with the 53E.

Ms. DELAURO. I also want to have a follow-up on Mr. Dellums' question, which had to do with the Global Broadcast Service. The question is whether or not the Navy has sought the most cost effective manner to meet the satellite communications requirements. Was there a competition on the project? Was there any consideration of a commercial capability that could fill your requirements at a lower cost?

Mr. DOUGLASS. Yes, ma'am. We did look at that very carefully, ma'am, and there will be a competition for the ground terminals associated with that system. But for the satellite part of it, it is pretty simple, ma'am. If you have already paid the price of the rockets to get them up there and the price of the satellite they go on, it is pretty hard for somebody to compete for that when they have to provide the launch capability and the satellite and the direct broadcast.

So if you have a situation where you are only going to put a little black box on an existing satellite, you have already paid for the launch, I do not see how anybody can beat that price. So what we tried to do was isolate those little black boxes from the overall system, and we are going to compete the ground system.

Frankly, there was nothing available to lease, as Mr. Dellums asked that question, because there are no customers out there in the middle of the ocean. But over the long haul, when the Air Force takes phase three on forward, I am assuming that they are going to look at all of the acquisition options, lease, the whole thing.

Ms. DELAURO. Thank you. Thank you, Mr. Chairman.

Mr. HUNTER. Mr. Chambliss, and then I would tell members we have a vote on the previous question on an amendment to the Product Liability Act and we will have another vote shortly after this one.

Mr. Chambliss, and then either now or when we come back, Mr. McKeon is on deck. Saxby, you are up.

Mr. CHAMBLISS. Thank you, Mr. Chairman.

I want to direct my question to whichever member of the panel is most familiar with the program and that is the stand-off missile requirement for the Navy. It seems that the Navy has elected to pursue the Standoff Land Attack Missile [SLAM] Enhanced Response [ER] Program for the near-term requirement, but I want to know more about the Navy's long-term plans for the survivable precision stand-off missile. Given that the Navy's long-term strike aircraft, the FA–18, is not going to be stealthy, this member is of

the opinion that a very low observable requirement should head your list for long-term stand-off missile capability.

I am certain you are aware of Congress's priority placed on the development of the JASM Program, a program that Congress and the Air Force agree will necessarily employ very low observable air frames. However, another very key element that will make the program affordable is joint cooperation, and, of course, the Air Force and the Navy are joint participants in that program, as obviously I know you are aware.

I would like for you to elaborate on the Navy's view of JASM. This program appears to be moving at a very brisk pace and it seems that the Navy will need to maintain a prominent position in the program office if this program were to truly achieve its joint purposes, so if you will comment on that for me, please, sir.

Mr. DOUGLASS. Do you want to start, Joe? Let us let Admiral Lopez talk a little bit about the requirement and then I will tell you how I feel about the joint program.

Admiral LOPEZ. First and foremost, you are certainly on a mark, sir, with respect to the need for a stand-off system. We were very concerned, as you know, with Tri-Service Standoff Attack Missile [TSSAM] and that is what caused us to keep the SLAM ER line warm. We are comfortable that we do have a system that is not state of the art for the future, as TSSAM would have been, but we have a pretty good stand-off system in SLAM ER, so we are comfortable with that.

I might also add with respect to the F/A–18E/F, we would like to come back to you and give you a full briefing on its capabilities. We are also comfortable with that in getting in and surviving and I would like to discuss that in a classified briefing, if I may.

With respect to JASSM—Joint Air to Surface Standoff Missile—we are fully vested in that with the Air Force and I will let Mr. Douglass talk about possible future R&D and procurement on that.

Mr. CHAMBLISS. I appreciate your comment on F/A–18E/F. I would like for you to do that, because maybe I do not understand all of what we are looking toward down the future there, but it just seems more crucial to have that stealthy missile where we do not have a totally stealthy airplane.

Admiral LOPEZ. Yes, sir, not only stealthy, sir, but the range, the stand-off range.

Mr. CHAMBLISS. Absolutely.

Admiral LOPEZ. The first day, being able to stand off and shoot a missile that is not only stealthy but super accurate and carries a punch, if you will, is what we are looking for.

Mr. DOUGLASS. On the program office part of it that you mentioned, as I mentioned earlier, I was one of the first guys in the joint cruise missile office, which is kind of the great-great-great-great-granddaddy of JASM. I fully support having Navy people there and we are going to make sure we keep that office manned up.

The Navy, as Admiral Lopez says, is looking at the JASM for the long haul. For the short time, we are very happy with SLAM ER because we have a lot of the basic SLAM's and we can just with a retrofit kit modify them to the ER configuration. It is a very affordable program for us.

But over the long haul, we are staying with JASM and we are going to work with the Air Force. As the requirement begins to develop in the future, we may end up being a substantial partner in the actual procurement. But we will fully man the program office, sir.

Mr. CHAMBLISS. I appreciate that. It looks to me like long-term down the road, a stealthy missile just is going to be of very much benefit to both the Air Force and the Navy. I am a little concerned about what you said earlier about these joint ventures or joint operations and there being some problems there. If you get any more of those letters on your wall with respect to this, if you will let me know, we will be glad to respond to one of them. But I think it is crucial that the Navy continue to participate in that.

Mr. DOUGLASS. Yes, sir.

Mr. CHAMBLISS. I think it is obvious you are going to need that long term.

Mr. DOUGLASS. Right. I am very proud of the young naval officers and civilians that are serving in joint programs today. I meet with them often. That is why I put that letter on the wall, so that they know that I have been there, done it, know how tough it is. Many of our Navy program offices today are joint, and I just think the Department has come a long way since the 1970's when those of us who were in joint programs really suffered for it. So I am a solid supporter. I think you and I are right on the same wavelength, sir.

Mr. HUNTER. I thank the gentleman for his question, the very distinguished gentleman from Georgia. We have about 3 minutes left on this vote, so let us go vote. We will come back and we lead off with Mr. McKeon.

[Recess.]

Mr. HUNTER. The subcommittee will reconvene.

Mr. McKeon, the very distinguished gentleman from California, is next in line, so Mr. McKeon?

Mr. MCKEON. Mr. Secretary, I am happy that you are here with us today. Just before the break, we were talking about Stealth and I have a question that ties in with that. As you know, the Congress set aside $25 million in the fiscal year 1996 authorization bill to study the feasibility of producing a carrier-based version of the Air Force F–117A Stealth fighter to use as an interim aircraft until the Joint Strike Fighter Program comes into production. Can you advise the committee on the status of this study?

Mr. DOUGLASS. Yes, sir. I was very hopeful when that whole project got started that we would be able to make a major effort to take a look at that, but the lawyers in the building tell me that this money fell into one of those categories of authorized but not appropriated. So we are sort of stuck, in a way, sir.

It is a subject that you and I have spoken about privately and if we had a clear authorization and appropriation to go do a study like that, we would be glad to go do it. It is clearly an option that I think needs to be looked at in some detail, but we have not been able to do anything because we did get an authorization but we did not get an appropriation, is my understanding of the status.

Mr. MCKEON. Thank you very much. Then that is something that we need to work on this year. I think that would be money well spent. We will see if we can help out and get that appropriated.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. Thank you, Mr. Secretary.

Mr. Kennedy, we are going to get into submarines very shortly, but if you have nonsubmarine questions, go right ahead.

Mr. KENNEDY. I do. Thank you, Mr. Chairman.

I would like to let the panel know that the committee is now presently working on joint hearings with both the Resources Committee and the Science Committee to see how they can consolidate the involvement and planning process with respect to oceanography.

That brings me to my question about what in the 1997 budget you see in terms of reflecting the emphasis the Navy is placing on the littoral warfare and changing from the blue water ocean fighting to the littoral environment and how you see oceanographic research playing a part in that and what this budget reflects in terms of the CNO's prioritization of oceanography, as he has stated here on a couple of occasions, and who within the Department is running the oceanography R&D for the Navy.

Mr. DOUGLASS. Yes, sir. First, let me say that you can look through the Navy's budget in a myriad of ways to see the shift in emphasis that we have placed up and down the line from what might be considered the cold war emphasis that we had on the kind of combat that you might have considered to be the deep ocean combat to the kind of future that will involve combat in littorals. Both the CNO and the Commandant have placed major, major emphasis on that, and Admiral Lopez can, I know, go into that in detail.

Oceanography is a critical part of that. I was down in Mississippi not long ago when we launched the *Atlantis*, which was one of our new oceanographic ships. I solidly support that program. I do not have right it at the tip of my fingers how much money in total we are spending on it, sir, but I will be glad to answer that for the record.

Mr. KENNEDY. Would you please, and to follow up, it has come to my attention on the Natural Resources Committee, and this is where I would like you to address the cooperative effort that takes place within the different Departments, that the Defense Mapping Agency is sharply curtailing the money that they are going to spend with National Oceanic and Atmospheric Administration [NOAA] on doing mapping.

Mr. DOUGLASS. I was not aware of that.

Mr. KENNEDY. Yes, significantly. It is half of what it was last year and they are going to phase it out altogether in the following year.

Mr. DOUGLASS. My guys just handed me up a note that says that in the Office of Naval Research that we spend about $150 million a year in science and technology programs for oceanography. I know we have a pretty robust program. As you know, we work with Woods Hole and other civilian institutions and we turn our ships over to NOAA and NOAA operates them in a joint manner. It has been a great program for the country. There is some issue of how

many ships do we need for the future and there is a pretty big backlog in things we would like to do in mapping the ocean bottom and undersea exploration.

Mr. CUNNINGHAM. Would my friend yield a second?

Mr. KENNEDY. Yes.

Mr. CUNNINGHAM. We have a new system working with NOAA that we found that we can produce those charts at about 10 cents on the dollar. It is even more effective, it is quicker, and I will be happy to give that kind of information to you to see what with less funding we can give the same service.

Mr. KENNEDY. Fantastic. If you would, I would really appreciate it. I am really interested in this.

And if you could call out for me where that oceanographic research, how it teases out in the Navy's budget in terms of which programs it goes to and how it is reflected.

Mr. DOUGLASS. We would be glad to do that, sir.

Mr. KENNEDY. And how you work in a cooperative way with the Science Committee on this, with other related agencies like NOAA and like, I am sure, National Aeronautics and Space Administration [NASA] with the satellite technology and what that reveals in terms of remote sensing. I would be very interested, because this committee is going to be taking up some legislation to work in a cooperative manner with those other committees to consolidate oceanographic research, and then the Navy is such a major part of this. We want to know what you are already doing in this area.

Mr. DOUGLASS. Right.

Mr. KENNEDY. I know if Chairman Weldon were here this is where he would like you to give us some more information, if you would.

Mr. DOUGLASS. After the hearing is over and we send our answers for the record back, Congressman Kennedy, if they do not fully answer all your questions, call me and I will come over, because this is an important thing and we will work it for you.

Mr. KENNEDY. I just want to follow up with one final question. One of the priorities that you have outlined obviously for the Marines is the AAAV. I am interested in how you accelerate that program while maintaining the double Amphibious Assault Vehicle Program as it currently exists, because I understand that, as was mentioned by Congressman Peterson with respect to other programs, it is really pushing the edge in terms of its current capability and the mission environment that the Marines now find themselves in and it is costing a great deal to give that upgrade and extend the life of it to the point where these ships are really on their last legs.

So I would be anxious to hear how that money that is currently going to keep those ships going, because the procurement has not come forth on the AAAV, how you are going to make sure we do not spend good money after bad, keeping that going and accelerate the AAAV.

Mr. DOUGLASS. Let me let Jeff take a first crack at that. This is their No. 1 program.

General OSTER. We have changed in our major depot maintenance for our major pieces of equipment to what we call the IRON, the inspect and repair only as necessary. In the old way of doing

business, we had a standard maintenance cycle that we would go back in on a set number of years and you would swap out all the components. What we do now, we still send it back on a set number of years but we inspect it first and we only repair those components or items that need to be repaired. We have not seen a large increase yet with regard to the AAAV in the IRON program.

We are looking, because AAAV is so important to us, and when we lost the $190 million a couple of years ago, it added a couple of years to the length of that particular program. We were able to convince DOD last summer to put about half of that money back in. We are able to compress about 8 months out of that, and we owe this committee an answer, which I believe is about ready to be signed out, as to how much it would take to bring it right all the way back to the original schedule.

The bad news is that all the money in the world will not bring it back to the other schedule because we have had the opportunities lost in the last year and a half. But we can compress it by about 12 months and we will be bringing that answer back.

We are very carefully looking at the AAV, because we want to maintain—we need to maintain that capability until it is replaced. We believe we are on track with the AAAV Program. We believe we have very aggressive risk reduction in the concept development phase. We are about ready to go into the dem val phase. We feel very confident we will be able to deliver, and with a little bit of extra money which we will be reporting to you, I think $20 million in 1997, we can buy back about another 4 or 5 months of that schedule.

But we are watching both sides of the equation, but I do not believe we are at a position to make any major change in our AAV maintenance policy at this time.

Mr. KENNEDY. Understanding it is pushing the edge, I understand there are some real structural problems because of the missions that it is called on to perform and they were not the missions that it was necessarily designed to fully meet, whereas the AAAV will meet those more aptly. So the shelf life of the AAV is really coming to an end.

But if I could, one final question on the mine countermeasures, since that is such a big part. You have said that in the 1997 budget, it is the best that it has ever been. What can you tell us about that and how you see that going forward, given the littoral environment of warfighting that you are expecting?

Mr. DOUGLASS. The short version of this is that Congress has been very concerned about mine warfare for a number of years, and I think the last 3 or 4 years they have asked us to give a mine warfare program plan over to the Congress. One of the problems that we have run into is a lot of times the Congress will ask the Department of Defense for a plan and we send over a great plan but we do not put any money behind it.

Mr. KENNEDY. Right.

Mr. DOUGLASS. Finally, last year, Congress got a little upset with us and said, next year, if you do not send the plan over with a certification that says that it is fully funded, then somebody else is going to manage that thing other than the U.S. Navy.

So we worked hard in the building, Admiral Lopez and I and others, to scrape up the money to make sure that it was fully funded in fiscal year 1997, and we even went back a year and looked at some of the shortfalls in 1996 to make sure that what we wanted to do this year was fully funded.

Now, what we cannot do is we cannot, within this year's budget, fix the outyear budgets yet, but we promise to do that in fiscal year 1998 in our planning/programming/budgeting process. So we have sent over a plan. I think it has come over or it is about to come over from the Secretary of Defense that has the certification that it is fully funded in fiscal year 1997 and we are promising to fund it in the future.

So we are hoping that when the Congress receives the plan and our commitment to it, this will be a substantial improvement from where we have been in the past, because it is a critical element to operating in the littorals, you are absolutely right.

Mr. KENNEDY. I just want to conclude and say, it seems as though a lot of what we are discussing here, whether it is the V–22 or the AAAV, we are looking at that littoral environment and we cannot do it in a vacuum. Mine countermeasures are going to be so crucial. Everything that we have heard up here about the operations other than war are it is operations more likely than war and that is that we are going to need to go in and come out real quickly and we are going to need to know that when we do that, we are not facing a lot of obstacles that could delay our ability to react and respond at the appropriate time.

Mr. HUNTER. We thank the gentleman for his series of questions and all those last questions were excellent.

Mr. Longley, the gentleman from Maine.

Mr. LONGLEY. Thank you, Mr. Chairman.

Mr. Secretary, I would like to ask a question about the reprogramming issue affecting the *Aegis* destroyer program.

Mr. DOUGLASS. Yes, sir.

Mr. LONGLEY. I understand that this is a pretty critical issue that relates to your ability to effectively implement multiyear procurement of the system and I would like to get your comments on that in terms of potential savings and what it might mean to the Navy.

Mr. DOUGLASS. Yes, sir. We will all recall that during the deliberations on the budget for fiscal year 1996, we all wanted to buy three DDG–51's, but when all the money got counted out, we only had the money to buy two. The Appropriations Committees just sent us over money for two and said to buy three. This committee went further, in cooperation with your counterparts in the Senate, and came up with a plan which I solidly endorse.

I do not know if you were here or not, Congressman Longley, but I thanked the chairman for his foresight in this. You said, see what you can do to link 1996 and 1997 together to buy six ships. The way you do that is we need some advance procurement money in 1996 for the third—you could look at it as the third ship in 1996 or the fourth ship in 1997.

So the Department has met its commitment and put the rest of the money for the fourth ship in 1997 in the budget, but we need this $104 million of reprogram 1996 money to fill out the package

and it is a very high priority. I have received a number of calls from Congressmen and Senators who have been concerned about this. Some people have said that they are concerned about where the sources, where the money came from, but I tried to be very straightforward on that. We do need the money for the DDG–51 program and we would appreciate it if all four committees would approve that reprogramming.

Mr. LONGLEY. If I could, Admiral Lopez, I understand that the Navy just completed a comprehensive surface combatant force requirement study and I understand that the Navy has concluded that it needs a minimum of 135 to 145 combatants to meet both near-term and long-term requirements, yet the Bottom-Up Review only provided a force of 116 to 124.

To what extent do you view the DDG program as significant in light of this study—the current procurement rate, excuse me?

Admiral LOPEZ. Yes, sir. The current procurement rate is as much as we can afford. If we could buy more, we would. But you are absolutely right on the numbers. We would like to have those 135 to 145. We just simply cannot afford the numbers in the building rates, if you will, to give us that.

We will be looking at a family of ships with service combatant, SC–21 which will include things like *Aegis* and perhaps some less-expensive ships to replace our frigates to do operations such as Haiti or off Somalia or embargo operations so that we buy in a cost-effective fashion.

But the DDG–51 right now is our premier ship, and I might just add that that ship is coming in under original cost. We are getting more ship now for the same money. So not only acquisition reform is working but competition is working, as well.

Mr. LONGLEY. I appreciate that, and just one follow-up, Mr. Secretary. I understand you are also looking at trying to advance the concepts of multiyear procurement, particularly the next 4 fiscal years following this. Is this reprogramming decision critical to your ability to bring that about?

Mr. DOUGLASS. In a way, it is, because clearly, I think if we can demonstrate that we can save the $300 million that we will save if we can buy 1996 and 1997 as a block, it would give the Congress some confidence that when we come forward with the next 4 years, that we can save the $1 billion roughly—I think it is about $800 to $900 million—that we have advertised in savings over that period.

I am very optimistic that if we work together to stabilize the DDG–51 program over a 4-year period, we can save a lot of money. I am very enthusiastic about that.

Mr. LONGLEY. That would be great. Thank you, Mr. Secretary and Mr. Chairman.

Mr. HUNTER. Absolutely. It is going to be Mr. Sisisky and then Mr. Cunningham, but Mr. Secretary, before we leave that last note, there is a reprogramming that you have requested with respect to this buy of our lower tier block IV or standard missile, is that right?

Mr. DOUGLASS. No, sir. They are not block IV. Those were block III missiles.

Mr. HUNTER. I mean block III–B.

Mr. DOUGLASS. I know there are a lot of people who would like to see that money go into the block III missiles, but the Department of Defense told us we are not going to get those block III missiles one way or the other.

Mr. HUNTER. We need some information on that. You guys were going to send that analysis to us.

Mr. DOUGLASS. We will be glad to send it over, anything you need, sir, because we certainly want that reprogramming. I have two very high priority reprogrammings up here right now. One is the Global Broadcast that I spoke about. We need that by 1 April or we are going to start incurring damages, and we need this one on the DDG's.

Mr. HUNTER. Thank you.

Mr. Sisisky, and then Mr. Cunningham?

Mr. SISISKY. Thank you, Mr. Chairman. I promised you I would not bring up CVX–77, so I will live up to my promise.

But all we are really talking about, and I noticed, too, at the trend, is affordability. The gentleman from Hawaii raised a very interesting question, and Mr. Chairman, I know we will not have time to have hearings before our markup because we are under the gun now, but I am telling you right now, I think that we have to have hearings perhaps after the markup of the bill on how we can afford all of these things.

The gentleman raised a question about capitalization. We have done incremental funding, but all you need to do is take 6 ships that you are doing this year, which is a pretty high amount for what has been happening, and multiply it by 30 and you come up with a 180-ship Navy. If you do it on 40 years, which is pretty much, you come up with a 240-ship Navy.

So somewhere in between, we have to do something to figure out, and you are going to have to help, and this committee would be the one, particularly the Procurement Subcommittee, the one to really look at this thing when we have time. I am not talking about right now, because certainly we do not.

But the other question I wanted to ask is affordability. Would you please explain the concept of the arsenal ship and what it is costing us? Is it a replacement for something or is it an addition to something? If you are talking about affordability, then we are going up with something that may be something we cannot afford in lieu of something else. But the reason I bring it up now and let you explain the kind of steel, we have battleships that can still operate with 18-inch steel on them and still show the flag. I am not against an arsenal ship. I just question, is this the right time to go into something like this, when we have assets already that we can use?

Mr. DOUGLASS. Yes, sir. The basic concept is to provide a ship that would give us a lot more efficiency in bringing firepower from where the firepower is manufactured to where we can deliver it in support of our forces ashore. It is an innovative new concept. We have begun an approach that is one of our what I would call our acquisition reform pilot projects. We are going to put a total price on the first ship, a ceiling on it, it is going to be somewhere around $530 million. The Navy would pay—I have forgotten the exact fig-

ures. Defense Advanced Research Projects Agency (DARPA) is going to pay about $170 million and we are going to pay the rest.

It is going to be a competitive program. We will start out with a concept definition phase to figure out exactly what concept that we would like to pursue. It is going to be open to all contractors. We would neck down fairly quickly, I think, to probably two of the best teams and then eventually get down to one that we would pick to build that first ship and we would like to have that team give us options for about five more.

We think that the price that we would end up paying if we were to, say, build a fleet of five would be probably the minimum price that we could expend to give our forces ashore the kind of firepower that they are likely to need on into the first half of the next century, Mr. Sisisky.

So it is a new concept, but it is, in my view, one that we have a military requirement for and one that will eventually save us a lot of money, because part of the concept is to avoid putting our replacement missiles on ships that you have to carry them out to the theater, take them off the ships, put them somewhere in a depot, take them out of the depot, put them on another ship, take them out to the fleet, refill the holes in the existing ships that we have.

And in addition to that, it gives us the kind of massed firepower ashore for our Marines that everyone has been asking us to develop over the years. As you know, in our Naval Gunnery Support Program, we have a program to upgrade the 5-inch gun and build an extended range munition, but everybody is concerned in that program, are we going to have enough of those 5-inch guns out there to really support our young troops when they have to go ashore? So this thing is a buttress to that.

Mr. SISISKY. That is why I raised the issue of the battleship. You already have an asset to do that. It is something that we will have to work over.

Mr. DELLUMS. Would the gentleman yield for a followup on his question?

Mr. BATEMAN. Would you yield to me?

Mr. SISISKY. Sure.

Mr. BATEMAN. Is any consideration given to the question of whether this should be a nuclear or propulsion vessel or conventional?

Mr. DOUGLASS. Mr. Bateman, we have not ruled anything out. As a matter of fact, I get proposals in the mail. Every time I go out and give a speech and I mention the arsenal ship, I get a couple of them in the mail and I send them down to my guys. I have had proposals that we take old submarines and overhaul them. I have had proposals that we take and build giant catamarans. There is a proposal for a ship that goes out like a regular ship and partially submerges in the battle zone. There are just a lot of good ideas out there and what we are going to do is sort through those fairly quickly and pick the best two or three concepts and then compete them and then try to get down to one.

But the thing that I cannot emphasize too much is we have only so much money to put into this project. We are going to advertise that to everybody. It is going to be a "be all you can be" for that

amount of money and then we will make a decision, do we want to go forward.

Mr. SISISKY. I yield to Mr. Dellums.

Mr. DELLUMS. I thank the gentleman for yielding.

Mr. Secretary, I tried to listen carefully to your answer, but I am still not quite sure that I am clear as to whether or not the arsenal ship provides the Navy with a capability it presently does not have or whether it is an improvement upon present capability. If it is the latter as opposed to the former, then I would like to know what ships does it replace.

Mr. DOUGLASS. Joe, do you want to take this?

Admiral LOPEZ. Let me try and answer that, sir.

Mr. DOUGLASS. The Admiral is the requirements guy, Mr. Dellums.

Admiral LOPEZ. The arsenal ship, I like to think of simplistically as an ammunition ship that unloads on the target instead of on the pier. It does it instantly. It does it cheaply and efficiently, more cheaply and efficiently than we can do today. We do not plan on having a lot of people on there. Admiral Boorda has said he wants less than 50. We do not plan on having a bunch of radars on there.

We are going to use our CEC concept, Cooperative Engagement Concept, where an E–2 in the Navy or an Airborne Warning and Control System (AWACS) in the Air Force could be giving the signals of targets that could range 1,000 miles away hit by a Tomahawk or Army forces who need close support or Marines, that we could use the Army Tactical Missile System (ATACMS). We want a ship that can use the multiple systems or rocket systems and missile systems that are available to it to support our Army and Marines ashore.

It is a cost efficient process in the sense that I would hope—and we are reviewing this now with the Marines in particular—that speed on the ground is paramount, maneuver warfare, and I am no expert. Jeff is the expert in that. But whatever we can do to make them faster and more effective, for instance, if they do not have to take all of the ground support artillery with them that they normally carry and we can perhaps take some of that to sea, not all of it but some of it, and we do not know where that is right now, we are still working through this, then we will be more cost efficient. They will win faster and cheaper in the end.

We do not have any other ship like this. I would kind of like to think this is the battleship of the future. This is the new technology, because of range and payload. I would never deny that the most cost effective system in warfare from the sea is a gun, but you have to reach the target and you have to do it very quickly. The technology involved demands something like an arsenal ship.

I know that is a long answer to your question——

Mr. DELLUMS. Then do I draw from your answer that you view this as capability you presently do not have and therefore it does not replace ships, or are you saying that it will, indeed, replace ships? That part, I am not quite sure about.

Admiral LOPEZ. I think it replaces capability. If I have an arsenal ship that is capable of firing 500 to 1,000 missiles on the beach in rapid succession, then I do not need to put VLS units, vertical launch systems, on all my ships. I still might have to put them on

some, depending on the application of warfare, and that is evolving now.

But yes, I expect that to replace some capability. That might allow me, for instance, to build a low-end SC–21 first, and we are evolving that now, as well. This is such a new concept, but we are very excited about it in that it can make us a more cost effective Navy and a more powerful Navy that can project power in a different way to support our Army and our Marines.

Mr. DOUGLASS. And Mr. Dellums, it could also cut down, as he said, on the artillery you would need ashore or the air support you need ashore. All of these things could be changed if this concept proves out.

Mr. SISISKY. The reason I asked the question, Mr. Chairman—

Mr. HUNTER. No, go right ahead. This is a brand new concept and it is important that we air it, so go ahead, Mr. Sisisky.

Mr. SISISKY. The reason I asked the question, when we talk about 18-inch steel on a battleship, what are we talking about on this to protect itself? If you are talking about Tomahawk missiles, what do they sell for now, $1.3 million or something like that? I mean, you are talking about an expensive load there. You are not talking about little things. This is an expensive load. That is the only reason I questioned it, because I think we are going to have to get into it sooner or later.

Mr. HUNTER. If we fire 1,000 missiles, that is a $1 billion load, right?

Admiral LOPEZ. If you used all Tomahawks and they were that cost, yes, sir, but we have gotten that cost down considerably less than that——

Mr. HUNTER. That is a hell of a mad minute.

Admiral LOPEZ. I would not want to be on the receiving end of it.

Mr. SISISKY. I have some other questions, but I will not bother. Let us get into submarines.

Mr. HUNTER. The distinguished Top Gun, the celebrated Mr. Cunningham.

Mr. CUNNINGHAM. Thank you. I got in an argument once. I shot a truck in Vietnam with a sidewinder and they said, Duke, you know, the damn sidewinder cost more than the truck. But if you look at the ammunition and the damage that truck was going to do to our forces and multiply that, I think it kind of balances out your question there.

Mr. HUNTER. I thought the truck was ours. [Laughter.]

Mr. CUNNINGHAM. It should have been your Explorer.

What I would say, Mr. Secretary, first of all, with your dad being a chief, my squadron was run by chiefs and I know that you were brought up properly. They are the backbone of the service. My other background, my family's background is Marine Corps. The same thing would be with sergeants, I am sure.

Let me ask some very pointed questions. Admiral Lopez, your request that you are basing this on right now is on the $39 billion vice the $60 billion fiscal year 1997, is that correct?

Admiral LOPEZ. Yes, sir.

Mr. CUNNINGHAM. In light of the testimony, and Mr. Secretary, I want to laud General Krulak and Admiral Boorda and the rest

of the Joint Chiefs of Staff for standing up for what they believe is right, even at risk of their own careers, and in light of General Shalikashvili's memo to the President saying that that kind of capitalization would risk national security. That was released by Admiral Owens 2 weeks ago.

In view of the $39 billion that you are basing this on and everything I hear, from 135 to 145 light Aegis, from surface combatants to other things, there is a lot of other programs that we need that you have not requested, is that true, Admiral Lopez? Can I get a yes or a no?

Admiral LOPEZ. Yes. There are lots of things we need.

Mr. DOUGLASS. Yes. There are programs that we need, sir, that for affordability reasons we have either deferred or——

Mr. CUNNINGHAM. Thank you, Mr. Secretary. The reason I asked that is that this year when we plussed up the account some $7 billion, under the same type of restrictions that the military submitted its budget, based on what the President requested, but yet we knew that there were other capitalizations that we needed to do and we were charged on the House floor by those that would have us cut defense that it was pork, and second, why did we plus it up when the President did not request it?

I am just trying to establish on the record that we do have those needs, and for the liberal education system, that is a $21 billion difference, which I fully intend on trying to get, what I can, the chairman to—I am making my little poignant points, Mr. Dellums—to plus up, because there are needs for it. It is not pork but it is genuine needs that the services, not only yourself but the rest of the services, need.

My real concerns in everything that you are talking about and when we have the other services come before us, and just your programs, I kind of picture F–14A's and D's and then F–18C/D's and then go out here where you're looking at the E/F in 2001 to 2004 and then Joint Advanced Strike Technology (JAST), and then look at the Marine Corps with the V–22 and Comanche and go out, and then if you look at the Air Force with their F–15 Strike Eagle and the F–16's and their requirement for F–22 in any great numbers, and then the importance of JAST on all the services, this $39 billion is going to collapse and we cannot do what we are trying to do.

Being below the Bottom-Up Review, even, that kind of capitalization, we are doomed from this budget to start with to ever meeting those goals. I know, which I will not bring up today the requirements for the F–14's that are going to be coming up, and I am not sure about the AV–8's when the investigations are through. We have to carry those aircraft through 2001, 2004, until those systems are upgraded. If we do not, then the other side comes to us and says, well, Admiral, what do you need those carriers for? You do not have enough airplanes to put on them. That is the game we have been playing for years.

Based on the President's and the administration's assumptions that inflation will never go higher than 2½ percent over the next 7 years is how we are going to capitalize this, and the acquisition reform, yes, I think is laudatory what you are doing in acquisition

reform, but that and Base Realignment and Closure (BRAC) and inflation will never stay at 2½ percent.

I think just doing that on this assumption, we are dead-on-arrival, and so we will be asking for that and I would hope that you would support that, Mr. Secretary, because there are definite needs.

Mr. DOUGLASS. We certainly, sir, are aware of the debate here on how big the budget should be. As you know, our job is to take the President's budget and give you the very best program that we can and we support the President's budget. That is our job to do that.

Mr. CUNNINGHAM. I understand.

Mr. DOUGLASS. It is always a subjective issue of how fast you go and how much resources you put into an issue. We are at peacetime now, but we are all trying to enter into this debate in good faith, to lay it out so that intelligent decisions can be made. My ground rule is to lay it out for you as best I can——

Mr. CUNNINGHAM. I understand.

Mr. DOUGLASS [continuing]. But it is very difficult for me to go beyond where I have already been in terms of the priorities, because this is the best we can do with what we have.

Mr. CUNNINGHAM. Let me just make one final point for you to chew on. The President wants to start the capitalization in 2001 with $60 billion. In his "CBO balanced budget scored in seven years," that is where 90 percent of his cuts take place on discretionary spending. Do you feel that the other side of the aisle is going to increase defense and cut social programs?

Mr. DOUGLASS. Sir, that is over my pay grade.

Mr. CUNNINGHAM. And these are the concerns that I have, and that is why I say it is smoke and mirrors. I understand the limitations fully that you are under and I appreciate that, but I have to deal in reality and the reality of what we are asking for in this $39 billion is not sufficient.

Thank you, Mr. Chairman.

Mr. HUNTER. I thank the gentleman.

The other very distinguished combat aviator, Mr. Peterson?

Mr. PETERSON. Thank you, Mr. Chairman. I appreciate you indulging, and I will be as fast as I can because I know we want to get into submarines.

I made a point earlier that I thought it was important that we accelerate to the extent we can. Mr. Spratt made an excellent point that I think we need to talk about a little more, and that is we need your help. We do not want in this committee to throw money at you with strings that say that you have to do this when it is not going to do you any good because you cannot do the out-year sustainability. We do not want this thing to collapse in out years.

So please, if you will, give this committee some very strong guidance, because I have heard the Marine Corps has at least two first priorities already that we have talked about, the V–22 and the AAAV, and a couple of others. I am sure all the services have multiple first systems in the line of priority, and we cannot do it all. We cannot accelerate everything to the levels we want.

So you are going to have to be very precise in helping us in giving you what you can that will move some of these forward in such

a way to save some money and also to give us the capabilities we want earlier.

Now, having said that, I am a very strong proponent of the Marine Corps preposition force. It is a proven force. In fact, it is so proven that the Army is going to do it in greater numbers.

In that regard, I am concerned that in out years, the Marine Corps is going to have these clunker ships out there that will not get to the beach in time to do what we want to do, and if I understand, we do not even have—well, you need to tell me what the procurement levels are for the Marine replacement ships in that regard, because I think 2004, they go away in a lease fashion, if I am not mistaken. I know we have beefed that up. From the 13, we added to 15, I think. We have put portable air fields. I think we added some tanks.

We have done some things to enhance it, but I am worried that this is a force that, given what Mr. Kennedy was talking about earlier, the littoral aspects of our warfighting machine, this is an incredibly important facet of it. If you can give me some idea what you are going to do to keep that force enhanced and then what we are going to do to replace the ships that are currently carrying that load.

General OSTER. Sir, we feel very comfortable with the MPF. We would like the Maritime Preposition Force [MPF] Enhancement Program to be completed to 17 ships. That carries us out to the middle of the next decade with a very, as you pointed out, unique and special capability that we are well prepared to use and have used in both humanitarian and combat circumstances.

The follow-on to the MPF Enhancement Program is something that Admiral Lopez and I and the folks inside the headquarters have been looking at. It is an issue for a future program objective memorandum (POM). We have not really come to the final solution as to what that follow-on should be. There are different concepts that are out there, but we are addressing that and will have a solid answer, but we have not made that proposal yet inside the Department. We are working on that, sir.

Mr. PETERSON. But is it not true that the ships, the lease runs out in 2004 or something like that?

General OSTER. Yes, sir. The lease runs out but the useful life of the ships do not, so there are some options even with those existing ships to go beyond that period of time, sir.

Mr. PETERSON. And the additional ships to take you to 17, will they be modern roll on/roll off, then?

Mr. DOUGLASS. If you are talking about the last three that we are trying to get, as you may recall, last year, we were given $110 million and basically told to go do the best we could with it. There is some real conundrums here, because if you only have $110 million, you really cannot get a new ship and you really cannot get a conversion that is what I would call a Class A. It is a kind of "be all you can be" for $110 million.

I know there are some members of Congress in both the House and the Senate that would like to see us find a way to do more in this, and I was asked when we went out for bids on the ship that we would buy with $110 million to ask the shipbuilders, would they give us an option for a second ship. In other words, if we bought

two of them instead of one, how much more above the $110 million would it be, because some of them could perhaps get a deal and buy two of them to convert.

I had to work that a little bit in the building because normally we do not go out for bids when we do not have the money authorized and appropriated by Congress because you are asking people to spend their bid and proposal money and you do not have anything to award the contract with.

But in this particular case, since we made it voluntary, we were able to do that, and we are out on bids now and we will see what we get, what kind of bids we get for the $110 million and whether any of those shipbuilders are willing to offer us a second ship for some attractive price. I have committed to the Senate, and I make the same commitment here, to let you know what that price is in case that is something that you are interested in.

Mr. HUNTER. Would the gentleman yield briefly on this?

Mr. PETERSON. Yes.

Mr. HUNTER. As you know, we have made some analyses, as you know, Mr. Secretary. Our experience with taking these ships and refurbishing them, which is what we are going to do with the $110 million, has been a dismal experience in terms of time and delivery date. The last ships that we have to look at in terms of experiences, we are ending up paying about $210 million for basically foreign-built ships that have been refurbished in U.S. yards that are about 300,000 square feet and we could buy new ships that are about 25 percent bigger for about the same cost.

So one thing that we think it is important to look at before we duplicate—and incidentally, those ships are coming in way late in most cases—is to look at the prospects of putting more ships in the new ship pipeline and designating some of those for the Marine Corps.

Mr. DOUGLASS. Right. Mr. Chairman, as you know, we agree with you. If left to our own devices, we would really like to build new ships, not do these conversions. There has been a lot of pressure on us from other places to do them because people think they can get them cheaper, quicker. Frankly, the shipyards came in and fed that fire and told everybody that if we went the conversion route, and that was one of the problems originally in the program. The Navy kept saying, gee, guys, we would really like to do new ships and we can get you a better deal if you just let us do new ships, and the whole program got started late and then we made some mistakes and so on.

I think you and I are in absolute agreement, Chairman Hunter. There are other ways you can get this capability, as well. There is at least one proposal going around where a company is willing to go out and construct some ships and then lease them to us. So I would urge the committee to look at this, as you do in your mark-up, and be innovative and we will work with you.

Mr. HUNTER. We would hope that you would give everybody an opportunity, if they have new ideas coming in beyond the standard fix up the foreign ship plan, to accommodate those that are going to have offers to do that, and I understand there is at least one that is out there.

Mr. BATEMAN. Mr. Chairman.

Mr. HUNTER. Yes, sir?

Mr. BATEMAN. Mr. Chairman.

Mr. HUNTER. Did Mr. Peterson finish?

Mr. PETERSON. I will finish very quickly by saying that to me, it is not just the life cycle of that ship that we are using. It is the speed of that ship that is becoming more and more important and we are not addressing that by keeping this old stuff on board and even modifying this old equipment. We are talking about steaming days, which become more and more critical in this process of what we are trying to do, so I just want to make that point.

I think this committee has to look at the MPF very closely and make sure we have a good out-year plan for this, and I am not comfortable, frankly, with what we have heard so far.

Mr. HUNTER. I thank the gentleman.

Mr. BATEMAN. Mr. Chairman.

Mr. HUNTER. Mr. Bateman, I will yield briefly, and then it will be Mr. Bartlett. Go ahead.

Mr. BATEMAN. Mr. Chairman, I was just going to ask if I could make a suggestion. In view of the hour, it might be a good idea for us to go to submarines, do that, and then if there are residual questions on other areas, we could come back to it, but I think given the time, we might need to get to submarines.

Mr. HUNTER. We have really just a few questioners left, Mr. McHale, Mr. Bartlett, and Mr. Taylor. I think we can finish off here and go to submarines fairly quickly if we just keep driving. Let us see what happens.

Mr. Bartlett.

Mr. BARTLETT. Mr. Chairman, my questions have to do with submarines, so if I can pass now, I will be happy to do that until we get to submarines.

Mr. HUNTER. Excellent. Mr. McHale.

Mr. MCHALE. Thank you, Mr. Chairman.

My questions have to do with the arsenal and they follow up on the inquiries raised by Mr. Peterson and the earlier topics that were raised by Mr. Dellums and others.

In my view, the arsenal is a generational leap forward in fire support. It cannot be compared to any prior capability and it dramatically increases the defensive posture of those American forces that are initially introduced into theater. You may have gotten the impression I am a proponent of the system.

General Oster is here, and the general is a friend as well as a fellow marine. General Oster is the former commanding officer of the 7th Marine Regiment. In August 1990, when his successor commander of that unit took the 7th Marines into northeastern Saudi Arabia, the MPF ships described by Mr. Peterson came in to supply those enabling forces. We sent basically marines into theater with packs and rifles. Their tanks, their artillery pieces, their support came in on the MPF.

It takes a while to unload those ships, and so the need for the arsenal was highlighted in those first 2 weeks, when we had about 6,000 marines on the deck facing, less than 100 miles away, 100,000 Iraqis with tanks and artillery pieces. We cannot assume that our enemy will always be as stupid as Saddam Hussein. At that moment, clearly, if he intended to be aggressive, Saddam Hus-

sein should have attacked and our forces would have been dramatically outnumbered with only a limited capability of self-defense, which is where the arsenal comes in.

The arsenal is a platform where each ship will have approximately 500 Tomahawks. Two ships, in theory, will make it into theater within 72 hours, so that when those marines go in and the MPF ships pull into port, and let us hope the ports have not been contaminated, let us hope those ships can be unloaded quickly. But whatever period of time it takes, the arsenal, for the first time in American history, at what I think is a very reasonable cost, would provide fire support to those initial forces on the deck either to actively defend against an enemy attack or to provide a deterrent against such an attack.

We have never had that capability before. In terms of speed of arrival in theater, accuracy of the weaponry, this is dramatically different from what a battleship can provide. With submunitions, for instance, we can provide an antipersonnel, an antitank capability and the ability to mass firepower, not in a mad moment but perhaps over a 2- or 3-week period of time to defend those initial forces on the beach that may not yet have had access to the equipment aboard the MPF. That is why the arsenal, in my view, is so important, so such a dramatic increase in our firepower capability during the early stages of combat or combat deterrence.

I do not usually use my 5 minutes to give a speech. I did today by choice because I think this is an extraordinary advance in warfighting capability, and with that as an obviously biased introduction, let me invite your comment.

Mr. DOUGLASS. Just to begin with, it was a great speech. I will get the transcript from this hearing and take it with me when I go before the other committees. I could not agree with you more, sir.

I would mention also just one thing that did not come out in the previous discussion and that is I feel, and the CNO and others agree that there is some degree of urgency to get on with this and not drag it out and make this a project we will get in the middle of the next century. So we are going to try to get this first ship done as quickly as possible and one of the ways we are going to do that is to build it out of existing systems.

In other words, we know how to build ships, we know how to build Tomahawks, we know how to build standard missiles, we know how to build ATACMS. We have good communications systems. We do not need to invent things in order to make this happen. What we need to do is integrate them together in an innovative new warfighter concept.

I think the arsenal ship is symbolic of the way our Commandant in the Marine Corps and our Chief of Naval Operations are working together to take existing technology and put them into new concepts which are a leap forward. That is why we are proud it. The technologists like me are adding our two bits in by saying, hey, by the way, we can do this with a very small crew, so it is going to be cheap to do this compared to methods that we have had in the past. So we are in agreement, sir.

Joe.

Admiral LOPEZ. The only thing I would add, sir, is it will not just carry Tomahawks. It will have standard missiles that can shoot down ballistic missiles as they come in, as soon as we get that capability complete after the turn of the century, theater ballistic missile defense.

General OSTER. I think another important aspect of it is with chaos in the littorals and with the threat capabilities that are out there, we are really talking about a fire support ship, whatever that is, at about the 25-mile standoff. So when we go back to the battleship, which has a maximum range with a 1,600-pound round at about 22 miles, it does not meet the requirements of the operational maneuver from the sea.

The arsenal ship gives us the kind of range we need. We think, minimum, we need 43 miles. That is essentially the 25 miles plus the range that we would expect from our artillery. We would like 63 miles because that also gives counter battery fire against the enemy artillery. So that is kind of the gun requirement, and what the arsenal ship gives with the ATACMS and so on is smart precision weapons that we can fire deep to give us that kind of support.

Mr. MCHALE. And we have no such capability now resident within the U.S. Navy or the U.S. Marine Corps. This is really an extraordinary leap forward.

My red light has come on. The only caution I would throw out, in closing, as someone who is an enthusiastic proponent of the arsenal, it becomes a very fat target. And so I think particularly in light of the small crew and the kinds of defenses and depth that we now use, for instance, with our aircraft carriers, obviously, we must assume that our enemy is not stupid. We are going to have to be very careful when we put so many eggs in one basket to make sure we guard the basket.

Thank you, Mr. Chairman.

Mr. HUNTER. I thank the distinguished gentleman. He made a point that the ranking member pointed out to me a little earlier, and that is instead of diffusing these weapons loads, they are going to be concentrated and in the littorals you have a number of emerging submarine navies in certain countries that are going to be quiet when they move slow and when you have all of this ordnance in one platform, you are going to have a desire to knock that platform out. That may require, as Mr. Dellums said, protective considerations that may require a fairly substantial dedication of assets, just like our carriers do, so this can be a little complicated.

But thank you. I think we have aired this subject pretty thoroughly here and I think it is a good thing, kind of a first blush for a lot of the committee members.

Let me ask Mr. Taylor if he has comments, and then we will go to submarines.

Mr. TAYLOR. Thank you, Mr. Chairman.

Gentlemen, No. 1, let me congratulate you. I, by nature, am not a very complimentive person, and I regret that. Something I have been complimenting the administration on is in the area of acquisition reform. I think you all have done a very good job on that and it needs to be said more often, particularly with what you said about the LPD–17's and the lack of military specs.

Getting back to your need to as often as possible save money and use commercial technology when it is available, I will ask you to take a look—No. 1, I would like to ask the question, on our roll on/roll off [RO/RO] ships, on your fast sealift ships and your prepositioned [PREPO] ships, is it not pretty safe to assume that they are going to be sitting at the dock somewhere in excess of 95 percent of the time?

Admiral LOPEZ. I would hope not that high a percentage. We are going to get them in and get them out as quickly as possible.

Mr. TAYLOR. I am talking about over the entire life of that vessel.

Admiral LOPEZ. Oh, the life of the ship, yes sir. During peacetime you mean, yes.

Mr. TAYLOR. As opposed to your combatants, which are underway——

Admiral LOPEZ. Yes, sir.

Mr. TAYLOR. For that reason, and because we as a nation are very competitive at oceangoing barges and hopefully the newer swath vessels, I would encourage you, in order to reach some economies, that for future purchases to look at oceangoing barges, and particularly swaths to get your speed up, for the simple purpose that there are ocean going tugs available. This is something that we are competitive at in the international market already, whereas we are not competitive at RO/RO's. That is why we do not make them here. I think we could get a lot more for your dollar and free up money for other things.

I would also like to point out, to answer a previous question about the ammunition ship, that it is certainly not a new idea that landing ship docks [LSD's] were converted at D-Day to fire rockets, and that is all they did was combat infantry support. Now, this is obviously a much more technically advanced derivative of that, but it is the same idea. I would hope you would look at that.

The second request will be, I know the DOD does not normally like to step into other areas of government's bounds, but I think in this instance it would serve your purposes. You have mentioned that because of a lack of commercial shipbuilding, you have trouble hanging on to your industrial base, you have trouble hanging on to that skilled workforce. Obviously, something that we as a nation can do to help that industrial base and help that work force and do some good for the environment, I mentioned to Mr. Bateman yesterday, would be to speed up the provisions of the Oil Pollution Act of 1990 for the phasing out of double-hull tankers. As you know, that phaseout is not until the year 2015. It gives those single-hull tankers a heck of a lot of time out there to crash on the rocks and foul our beaches.

If you, Mr. Secretary, would consider supporting the idea of speeding it up 10 years, making the phaseout for single hulls 2005, that would obviously create a lot of private sector work. It would not cost the Nation anything and it would do the environment a great deal of good, because as long as there is one single-hull tanker out there, you still have that liability, whether it is just one of them or 1,000 of them. I wish you would look at that along those lines.

Mr. DOUGLASS. As you know, Congressman Taylor, I am a big advocate of trying to do things to stimulate commercial shipbuild-

ing in the United States. I think it is a travesty that all of the cruise ships that service the American ports are all built overseas and yet 95 percent of the people that go on them are Americans. I would like to see those ships built in America.

Mr. TAYLOR. You could also endorse the cruise ship package that has passed this House three times and somehow dies in a black hole over in the U.S. Senate.

Mr. DOUGLASS. I did not bring my chart with me today because I know this committee solidly supports this, but when I testified before the Senate, I had another chart in my little kit bag here and that was on this subject of commercial shipbuilding and reinvigoration of the shipbuilding industrial base in the United States.

I think we could do a lot more. I am doing some things that are kind of unusual for what an Assistant Secretary of the Navy would normally do, and you probably read somewhere in the paper I have been slapped down or whatever for going out and getting off the reservation, but I think we need to do more to stimulate the maritime industry.

We are a great maritime Nation. We need a maritime industry. We need better infrastructure in this country. What is good for the maritime industry is good for the U.S. Navy, and that is a kind of acquisition reform. So I am a big advocate of commercial shipbuilding and I will do anything I can to help it. I am not an expert, though, on environmental things and stuff like that. I am just a dumb engineer.

Mr. TAYLOR. My last request would be either using David Taylor or your naval engineers somewhere, I have been told that one of the limiting factors of using oceangoing barges as opposed to ships is the speed. What little I know about it, I have always heard that speed was based on basically the square root of the hull length, and I really do not quite understand why a barge could not get up to the same speeds as a ship if the hull is long enough, and I would hope you guys would take the time either to explain to me the fallacy of my ways or if I happen to be right, look into that possibility.

Mr. DOUGLASS. We will look into it, sir.

Mr. HUNTER. We thank the gentleman for his question.

We are now going to get into the submarine portion of the hearing. The committee has been, I think, very lucky, very fortunate, to have as one of our guiding lights, in fact, starting back in the days of Chairman Aspin, a blue ribbon panel that was put together by one of our then-staff members, Anthony Battista, Tony Battista.

When we examined the submarine question last year, we put together some members of that panel and that panel included the present Secretary of Defense, Bill Perry, and Assistant Secretary of Defense Paul Kaminski. They obviously cannot be part of the submarine panel this year, but we put together other members of the panel and Mr. Battista has been our coordinator. He has appeared before the Senate Seapower Subcommittee just a couple of days ago, the same hearings that Secretary Douglass appeared in.

Tony, we would like to have you take a place, perhaps. General Oster, this is not one of your fights, but——

General OSTER. I studied real hard to be a part of this discussion.

Mr. HUNTER. I do not know if you want to be in this discussion.

Mr. DOUGLASS. We will put Tony down here at the end, if that is OK.

Mr. HUNTER. Sure.

Mr. DOUGLASS. Jeff, do you want to just stay here, or what do you want to do? It is your option. Put Tony in here somewhere.

Mr. HUNTER. Tony, come on up, and let me just say to preface this, too, that one of the great things about this country is that you have a lot of folks who are interested in national security, interested in and concerned about the national interest. It has been a good thing to be able to call on people like Tony, like Bill Perry, like Paul Kaminski, like John Foster, like Lowell Wood, who have spent a lot of hours, a lot of late-night hours working national security issues like this issue.

Mr. Secretary, you and I have had a chance to talk a little bit about the report that has come out that you have produced as a response to the congressional directive. Why do you not go ahead and talk about your program and then we will open it up for questions. What I would like to do is to have Mr. Battista, since you are the coordinator of our blue ribbon panel, we want to see some engagement here. When we get to areas where there is some difficulty or a different point of view, let us hear it. That is what we are here for.

Ms. DELAURO. Mr. Chairman.

Mr. HUNTER. Yes?

Ms. DELAURO. Just before we begin, I have no reason to question Mr. Battista's credentials or anything like that, but is this something that is different from any of the other hearings that we have had with the services where we have had uniformed personnel, civilian personnel, but we have not just brought someone in to join the panel? I am just curious as to why the departure on the Department of the Navy.

Mr. HUNTER. Actually, Ms. DeLauro, the submarine area is the one area where we have had a blue ribbon panel that has not involved membership of the armed services, and that went back to the Aspin Panel that was implaced by former Chairman Aspin.

In fact, in the hearings that we had last year, we did have the panel testify and they testified in at least one situation with uniformed representatives from the Navy and we also had Mr. Ron O'Rourke, who is our Congressional Research Service [CRS] expert, testify, and we also had, incidentally, the shipbuilders, Electric Boat and Newport News executives testify, because what we have here is an issue that involves all of them.

And so rather than have one party testify and they leave and then the next day you come in with somebody else with a different message and have this discussion take place on a unilateral basis, my position has been that it is better to have some engagement and have industry together with the naval leadership and also have our experts.

So this is totally consistent with the hearings that we have had on the submarines. The submarine program is the only program where we have a blue ribbon panel that has been following this issue for us and testifying. So that is your answer.

Ms. DELAURO. I still think it is curious, Mr. Chairman, but you chair the committee, so that is what we will do.

Mr. HUNTER. I thank the gentlelady for her position.

Go right ahead, Mr. Douglass.

Mr. DOUGLASS. Thank you, Mr. Chairman. I am going to take a deep breath here before I start because this is a subject that I think we have common objectives on, sir, but there are many devils in the details between where we are and where we want to go. We sometimes, as ladies and gentlemen do in struggling with the best interests of national security, do not agree on how to get from where we are to where we want to go.

Let me have the first slide here. I want to start with just a brief comment on the *Seawolf* Program and then we will move right into the New Attack Submarine Program which I know the committee wants to talk about, but I need to make a couple of points here on *Seawolf*.

As I said in my opening statement, we are under the cost cap. We are under by a very, very slim margin. It is in the tens of millions of dollars, not the hundreds, as I would wish it to be, but we are hanging in there and I will keep this committee fully informed.

But ladies and gentlemen, let me tell you something about this that will color the debate that you are going to hear here in a few minutes. This is a really important point to make. That first *Seawolf* submarine is not in the water yet, and there are lots of people in this town who think it can do this or think it can do that, or think it cannot do this or think it cannot do that, or they compare this to something they have seen on the Russian side, and so on.

We are not going to know exactly what this submarine can do until we put her in the water, run her through her sea trials, we do some tests, take some of the bugs out of her, and perfect her. When you put your first boat in the water, not everything works perfectly. Everybody knows that. Anybody who has ever been on an airplane that made its first flight, not everything works perfectly. You have to twiddle this, you have to doodle that, you have to tweak it and make it work.

So all of the comments that the experts will tell you, my colleagues here at the table, Tony and others, about what this submarine can do, what it cannot do, and what the submarines that we are going to talk to you about in the next part of the briefing can do are people's opinions about where technology can take us—people's opinions.

The issue that will come before you is, who are you going to believe? Are you going to believe the people who have been building submarines in the U.S. Navy all their lives or are you going to believe somebody else? That is the basic issue that we are going to get down to, because we are not talking about things that have been put in the water and tested and have hard data on. So it is projections and people's views. That needs to be understood when we start through this thing.

Mr. HUNTER. Mr. Secretary, on that point, how long does it take to build a submarine?

Mr. DOUGLASS. It depends on the submarine, sir.

Mr. HUNTER. Generally speaking.

Mr. DOUGLASS. It takes 5, 6 years.

Mr. HUNTER. It takes 5 or 6 years, and then according to the theory that you have just laid out for us, we cannot question the so-called new attack submarine for the next 5 years. We will remain mum on the subject because there will not be one in the water until after the year 2000, is that your theory?

Mr. DOUGLASS. No, sir, that is not my theory. My theory is, sir, and the reason for pointing that out is in listening to the debate in the last few months, and I have been deeply involved in this debate, much of the debate has been characterized by statements in which people make categorical statements about what they think this can do, what they think that can do. There are also lots of statements that people make about what the Russian submarines can do and what they cannot do. Many of those are very easy to misconstrue in an unclassified hearing like this, given the constraints on classified information.

So I am just trying to be fair as we begin through this, sir, to make everybody understand that we are talking about projections. When we talk about threat, we are going to have to be very careful about what we do because we all know this is an unclassified hearing and we cannot fully explain it.

Mr. HUNTER. We all understand that. Let us go ahead with the briefing.

Mr. DOUGLASS. Yes, sir. Can I have the next chart, please? This is our objective with the new attack submarine program. We want to make a submarine that is as good as we can possibly make it for an affordable price and we want that design to be flexible. We do not want it to be a point design. We want it to be able to do a number of different things.

These are our goals, and I just put them up there very quickly to remind the committee that this is where we are trying to go. This is not a monolithic thing. It is a class of submarines that have got to last us for a lot of years and it needs to be affordable and flexible and it has to have enough performance in it to do its military mission.

The next chart, please. This chart describes the competition that we have set up as a result of the direction provided in last year's defense authorization conference report. We were required to make a certification that we would do competition and that certification was made in February of this year.

We were required to begin the process of building a 1999 boat at Newport News. We were given some money in fiscal year 1996 to start that process and that money, Mr. Chairman, is being spent the way you told us to spend it, and that is on track.

We were not told that we had to have a written agreement between the two yards, but this is something that I invented, but I want to make sure that the committee understands why I did it. It is because when we do get into this competition and we actually ask for a competition, it is going to be somewhere beyond the beginning of the century.

When I was in the Senate, some of the Members sort of took me to task on the way I explained this because one way of looking at this is you could argue that the competition starts from right now. But what I am talking about is when we actually ask for competitive bids, it is going to be out there in the next century and I felt

that it was important to get both of these two shipbuilders to sign on the dotted line with the United States of America about how we are going to do this thing so there is no misunderstanding 2 or 3 or 4 or 5 years from now as to what the ground rules are.

I will not be here then unless I am the longest sitting Assistant Secretary in the history of the U.S. Navy, so others will have to implement this. Many of you will not be here. There will be a different mix. We do not know what the political situation in the United States will be——

Mr. HUNTER. Why do you not lay out, Mr. Secretary, what the ground rules are that you laid out for the shipbuilders.

Mr. DOUGLASS. Basically, the ground rules are, sir, that we will start with the design that Electric Boat has. It is an electronic virtual design of the submarine; that that design will be moved down to Newport News so that Newport News can become a part of the virtual design of the submarine; that any proprietary information that Electric Boat has as a part of that design will not have to be transferred down South; that it will not be a winner-take-all competition, it will be a competition in which both shipyards compete for the—how do I say this?—we are going to try to keep them both in business and compete for the amount of business above the minimum that it takes to build a ship every other year in each yard. That is the basic ingredients.

Mr. HUNTER. On that point, Mr. Secretary, I have the language of the law that was signed by the President that we put into effect in the conference.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. The conference was participated in, the Senate-House conference, by the Secretary of the Navy, the CNO, and Mr. Hamry. The law clearly says that we do not set the class until the fifth boat, so we are not—we start with a base design, which is a new attack submarine, because that is the only design that we have that is ready to go to the yards where they can actually start building. But it says the first ship of the class shall start with the fifth ship. So it is not business as usual and building cookie-cutter new attack submarines [NAS's]. Do you basically agree with that, that that is consistent with your plan?

Mr. DOUGLASS. No, I do not, sir.

Mr. HUNTER. OK.

Mr. DOUGLASS. Our interpretation of the law is——

Mr. HUNTER. Let me quote the law to you. Hold on a second.

Mr. DOUGLASS [continuing]. We owe you a plan and we have given you that plan and we think it is consistent with the law——

Mr. HUNTER. Let me just quote the plan to you. The plan says that the Navy shall, in the plan, shall designate the fifth submarine to be procured as the lead ship in the next generation submarine class. Do you agree with that?

Mr. DOUGLASS. Sir, that is what the law says about the plan. The designation would take place, if it were to be the fifth boat, I think under various ways you could implement this plan, somewhere around 2001 or 2003. This is not a material issue in the context of what we do today, in my estimation.

Mr. HUNTER. Clearly, Mr. Secretary, this goes to the heart of our concern, the concern that started with the Aspin Panel, the state-

ments that were made by the Secretary himself and Mr. Kaminski, and that is that our submarine designers be given some innovative freedom to make independent proposals on changes that they would make, starting with the baseline NAS plan but departing from the idea that we have set, by gosh, the NAS, that is the new attack submarine and we are setting the class with the first ship.

This language we drafted in here to make it clear that we were not fixing the class with the first ship. We are fixing it with the fifth ship, meaning that the yards are going to have some innovative freedom to depart from that base design, and that——

Mr. DOUGLASS. Sir, we absolutely agree with the thrust of what you are saying in terms of giving the yards some innovative freedom. We absolutely agree with that. I am not sure what this quibbling over words over what is the first or the fifth——

Mr. HUNTER. I am not quibbling over words. I am making it clear. You have up there "New Attack Submarine Program", and you——

Mr. DOUGLASS. Let me try to run at it another way, sir. We do not consider that these first four boats will be—I want to be crystal clear with you on this because I do not want you to think that I came up here and mealy-mouthed words and led you to believe one thing when we are going to plan to go to do another.

These boats are going to be operational boats that will go to sea and become a part of the U.S. Navy inventory. These are not going to be test boats——

Mr. HUNTER. Wait a second. Mr. Secretary, nobody has ever said that the four boats we are going to be building were not going to be operational boats. In fact, one reason when we used the word "operational prototypes", it was exactly because they were boats that would be full warfighters. But nonetheless, we would not fix a class because we wanted to give that innovative license to the yards to depart from the NAS design that made some sense and in consultation with the Navy. That is an important point.

Mr. DOUGLASS. If you will allow me to proceed, sir——

Mr. HUNTER. Go ahead.

Mr. DOUGLASS. I think you are going to see that we have met the intent of what you asked us to do. We are going to start with the design and we are going to constantly improve that design. Both of these yards are going to be involved in the process of improving those designs. If the committee wants to call those first four things operational prototypes, sir, that is fine with me. I do not care what you call them. I just want to make it crystal clear to you that they are going to be derivatives of the basic design.

I went to those shipyards. I went to both of them, sat them down, got them in the room together, and I said, guys, we are going to start with one design and we are going to improve it, right? And they all said, right. I said, now could you go if we were to just give you a large amount of money and you went and built four completely different things, could you do this competition? And sir, the answer is no, and if you do not believe me, you bring those shipbuilders in here, sit them down, and they will tell you the same thing.

Mr. HUNTER. Mr. Douglass, you obviously have not read the hearings because we all know that. The reason that we put in the

language that you would start with a base NAS design is because we had the same conversations with the shipbuilders. We know you cannot go out and put in brand new designs for these four prototypes. They would be very expensive. So you have to start with the NAS design.

But there is a difference between saying you are going to start with the NAS design and give innovative freedom to the yards to depart where it makes sense or saves money or saying, by God, we are locking in the NAS class now and we are going to build basically four NAS's and they are going to be cookie-cutter boats, maybe with some evolutionary changes. But basically, what you have described to me is exactly what the Navy would do if we did not have anything here, if we had not done anything.

Mr. DOUGLASS. We are obviously not communicating, Mr. Chairman, if that is what we have described to you——

Mr. HUNTER. No, we are not.

Mr. DOUGLASS [continuing]. because I am trying to tell you we are going to be innovative, we are going to let these shipyards get involved in the design. If you let me go on in the presentation, I will tell you how we are going to do that, sir.

Mr. HUNTER. I have one question. How much freedom are you going to give the yards?

Mr. DOUGLASS. As much as I can, sir.

Mr. HUNTER. Go ahead with your presentation.

Mr. DOUGLASS. The only other thing that I think I need to tell you on this chart is all of the things that you asked me to do in 1996 are under contract to the degree I could get them under contract. This was a particularly significant issue to Newport News and I have met with their top management and we have spent the 1996 money the way you asked us to spend it.

The next chart, please. When I took this position, I knew this was going to be a tough issue and that is why you and I are being fairly vigorous here in talking about this, Mr. Chairman. But I want you to know that I respect where you are coming from. I am just asking you to bear with me and let me get through this. I did not fall off the turnip truck yesterday. I have been around here a little bit, and so I knew that I had to have some people that would help me get through this program.

So I went out and put together an independent panel, and they are distinguished Americans. They are not all Navy people. It is headed up by Admiral Baciocco. I hope your committee has a copy of their report here. Members of the Defense Science Board, Air Force officers, Army officers, distinguished people from academia——

Mr. HUNTER. I got a briefing from the Baciocco Panel and I thought it was excellent.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. Keep going.

Mr. DOUGLASS. Basically, what they told me was that we ought to proceed with a new attack submarine but commit to continuous improvement of the design. This is where I think you and I agree. The question is, how do you describe that continuous improvement?

They told us that we need to reorganize within the Navy to sharpen up the connection between our technologists and our sub-

marine producers so we can get this technology into the submarines as quickly as possible. I am committed to doing that, sir. That is underway as we speak.

They told me that we need to spend more money on technology, and the Navy has independently come to that conclusion, as well. We are, as you will see in the next couple of slides, committed to doing that, and they gave us a list of specific technologies, the ones shown on the bottom of the chart, that are areas that they feel are fruitful for us to invest in to improve these submarines as we go along.

Now, I want to make a point here and I think you will agree with this. When we are talking about the future of the U.S. submarine force and we talk about competition, we are not just talking about two shipyards that can build submarines. You have to have builders and you have to have designers. You cannot just get rid of all the designers and then go build them for 10 years and then you need a new submarine 10 years from now and say, how are we going to build it, when you do not have anybody in this country that can design it?

So we have to keep those two design teams alive. This is where I think you and I are on the same wavelength. The question is, how much freedom do they have? How can we harness those design teams in the most effective way to give us the best submarine for our money? That is what we are going to try to describe to you, sir.

The next chart, please. When I brought this chart over to the Senate, you notice that it says the report prepared by DOD complies with the fiscal year Defense Authorization Act. I used the term "consistent" on the previous chart and it turned out to be kind of a faux pas over in the Senate because some of the Members over there felt that we were trifling with the words "complies" versus "consistent".

I feel this is fully consistent, compliant with the spirit of the law, any way you want to look at it. My one ground rule, and I fought like a tiger inside that building, was to bring you a plan that fully complies with the law because we cannot move forward with the Seawolf submarine until it is compliant with the law, and Mr. Chairman, in my estimation, we have complied with the law in this plan.

I am going to show you some options. We can proceed with any of the options that the committee might choose. Like so many of the other things we have discussed today in this hearing, many of the decisions on where we go in the future are in the out years.

Mr. HUNTER. Mr. Secretary, hold up on that for one second.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. The options include building fewer than the four—

Mr. DOUGLASS. There are some options in the plan, yes, sir.

Mr. HUNTER. So what you are saying is that from your perspective, you can comply with the law and by following one of the option plans that was described in the report that builds fewer than the four submarines?

Mr. DOUGLASS. No, sir. I am saying that the plan—you asked us for a plan—the plan fully complies with the law. Some of the op-

tions within the plan would not do what, in my estimation, the conference report told us to do.

Mr. HUNTER. Pretty clearly, yes.

Mr. DOUGLASS. There is no question about that. But there had to be, in order to be compliant with the law, at least one option that fulfilled the intent of the conference authorization report. That is what I mean by I fought hard to make sure that there was at least one option in there that fully met the direction contained in the law.

I might add to you, sir, there is a flaw in what you told us to do, and I will explain that in just a minute. I would severely—or that is probably the wrong word—urgently urge the committee when they mark up this year to fix the problem that I found when I went through the thing in some detail.

Let me go on and just summarize here. In order to go do this, if we look at the four-boat plan that the authorization conference report asked us to do, we need to move forward about a little under $4 billion. This is not new submarines that we did not intend to buy. These are just moving them from the outyears into the 5-year defense program.

Mr. HUNTER. Mr. Secretary, let me hold you up for one question. We have a vote on, but I think this is kind of an important one at this point. For the members, the Department's plan states that it would be difficult to fund the congressional plan and proposes alternatives which have a lower near-term funding impact than the congressional plan. So you have alternatives in there.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. But your plan also states that the Department would face major near-term affordability issues in pursuing our plan or any of the alternatives that you have put forth. You also stated that you would have big problems funding the alternatives. So does the Department intend to pursue any of those plans? You do not just say there is a funding problem with our plan. You say there is a funding problem with your other plans, the alternatives.

Mr. DOUGLASS. The Department is committed at this stage, sir, to proceeding with a fiscal year 1998 and a fiscal year 1999 submarine. We are fully aware that by the time we get around to fiscal year 1999, this committee and your other committees will have a chance to mark up this plan two or three times. We are committed to the competition. How we eventually evolve this competition depends on the debate that ensues between the committees on the Hill and those committees and the administrations that are in force over the years between now and when this plan would be fully executed.

We are, at this stage, committed to the competition and the fiscal year 1998 and 1999 boats. That is what I am telling you, sir. We cannot—I mean, how far out can we make these commitments? It is a question of judgment.

Do you want to go vote now, sir, and we will cut it off here?

Mr. HUNTER. You can keep going until we get a second bell. Just go right ahead.

Mr. DOUGLASS. The other point is that you asked us to go look at technology and what you are going to find is that the plan tells you that we need at least another $60 million in research, develop-

ment, test and evaluation [RDT&E] investment over what we have in the budget now to implement this plan and that we have some improvements in the near term for the first four boats that we have laid out within the plan that we could see that are over and above the baseline program.

So we have identified two increments of R&D for the congressional committees to consider that would form the basis for the kind of innovation that you were talking about, you and I were talking about before, as we decide what technologies to inject into the program as we go along.

Mr. HUNTER. What funding levels are those, Mr. Secretary?

Mr. DOUGLASS. One of them is——

Mr. HUNTER. And who funds those? Do we add those on or are those funded in your budget?

Mr. DOUGLASS. We are just telling you in the plan, this is what is required, sir. Where the funds come from is the subject of future negotiations, both within the Department and with the Congress.

Mr. HUNTER. Why do we not break for this vote and we will be back in about 10 minutes.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. For the members, we have the final vote on product liability.

[Recess.]

Mr. HUNTER. We would like to wait 1 more minute or 2 for the Democrats to at least have a member on their side to come in.

While we are waiting, I wanted to recognize Mr. Ron O'Roarke, who is sitting in the back here. Ron is our in-house expert on submarines with representing CRS and did a great job as the honest broker that sat in on our panel sessions. We involved industry and the Navy and our panel members and Ron got to be in the middle of all those fights. I know he dearly appreciates that. Maybe we will put you in the middle some more here, Ron. Thank you for the work you did last year on this thing.

We will wait just another minute or two and then we will kick it off, even if we do not have a member from the other side.

[Recess.]

Mr. HUNTER. We will go ahead and fire up. Go ahead, Mr. Secretary. There is one of our slides that maybe you just have not gotten to yet but it is basically the program numbers with new construction.

Mr. DOUGLASS. That is next, sir.

Mr. HUNTER. Why do you not slap that up there and go through that thing for us?

Mr. DOUGLASS. Can I make one other point on this one before we go?

Mr. HUNTER. Yes.

Mr. DOUGLASS. One of the things that you asked us to do in the authorization conference report was to increase the oversight of the program by the Under Secretary of Defense for Acquisition and Technology. That is Dr. Kaminski. We have outlined in the plan, and I would be glad to flesh out that in more detail, a technology oversight council that we would establish and which Secretary Kaminski and myself would chair.

We would bring in DARPA, all of the people involved in the submarine community and the Navy, the principal people involved in shipbuilding in Dr. Kaminski's staff, and the three principal contractors that would be involved in this program, Electric Boat, Newport News, and the contractor that wins the contract for the combat system in the boat. Put all of those people on the panel and that would be our forum for this innovative process that you and I have been talking about, about how do we get new technology in the boats.

My plan would be that you have also established a congressional oversight panel made up of members of this committee and Members of the Senate. This council would be the way of interfacing with the congressional oversight group so that there is plenty of interaction to make sure that what we are doing and what you want us to do are the right things. So I have tried to come up with a mechanism which is different than business as usual to facilitate the injection of technology.

Mr. HUNTER. Mr. Secretary, we understand and appreciate that. We know you have put that in and that is part of your way to make this thing work.

One point on that is this. You mentioned the extreme importance of these independent design teams, keeping the design teams alive, and that is one reason we kept a second yard alive with respect to the submarine program. Would it be your thoughts that if both yards are building their respective boats, that if you have a team that wants to make a design change to accommodate a new technology, a new idea that they have with their boat, that they would be given license to do that, or would that have to be a corporate decision made by the Navy that would be applied to both yards?

Mr. DOUGLASS. We would hope that it would be a corporate decision.

Mr. HUNTER. What if one——

Mr. DOUGLASS. But I would not rule out the idea that we might have, let us say, boat one and boat four—let me explain it this way. When you start with boat one, that is what it is. Boat two would be substantially different than boat one because it has new innovations in it. Boat three would be different than boat two because it has innovations in it, and so on through the process.

Now, let us say, for example, that one yard or the other said that we really think that we ought to build more than one of a particular design, maybe with a different sail, maybe with some change in the hull configuration or something. It is not out of the realm of possibility that we could end up with multiple designs.

Mr. HUNTER. The point is, if we did that, if we had some departure from each yard without it being a corporate departure, then the Navy would have some choice, even though we well understand none of these things are going to be in the ocean before we make a decision on competition.

Mr. DOUGLASS. Yes, sir, that is right.

Mr. HUNTER. But you would have some choice. So if you have a yard that is willing to take a chance and do something maybe the other yard is not willing to do, but with the understanding that if it works, they get rewarded. If it does not work, this is America and they get punished——

Mr. DOUGLASS. We agree on that.

Mr. HUNTER. That, to me, giving that freedom to them, I think would be an important thing.

Mr. DOUGLASS. We have to exercise our oversight responsibilities here. We are not just going to turn them loose to do anything they want.

Mr. HUNTER. And that is the point, is giving enough freedom to the yards to really innovate. How heavy that hand is, whether it allows them the freedom to innovate but yet keeps some control and some review and some oversight, but yet does not become stifling and allows these guys—they are competitors and one of them is going to maybe build—I guess the point I am making is, we do not want to have one mousetrap at the end of this thing. One of them may build a better mousetrap and they should have a chance to do that and be rewarded and the Nation will be rewarded if they do.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. We do not want a cookie-cutter four mousetraps and then simply have a competition based maybe on cost or man hours or something else when we get to that crunch point.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. Do you not kind of agree with that idea?

Mr. DOUGLASS. Yes, sir, we can accommodate that. I would point out, Mr. Chairman, that there are two principal areas that design improvements could follow. One of them is to infuse new performance into the boat, in other words, changes in design and make it better, do its job better.

There is another avenue of design changes that we really want to pursue. We do not have an enormous list of good ideas right now, but we are going to put some considerable research into it, is how do you build these boats cheaper? This is the acquisition reform side of it.

Mr. HUNTER. And that question is just as important, probably, as making them better.

Mr. DOUGLASS. Exactly. Exactly.

Mr. HUNTER. Because if we can make them cheaper, we can make them better.

Mr. DOUGLASS. Right. If you look at what the Russians are doing, they have one yard, two design teams right now. They recognize, I think, the basic principles that the leadership in the Congress and in the administration have recognized, that it is probably smart to have two design teams.

We are going to end up with two yards, two design teams. That is expensive. How do you buy out that expense and make it pay for you is through this competition, through the kind of things that you are talking about. We are going to work hard on that. I do not think you and I are off track on this particular aspect, sir.

Mr. HUNTER. OK.

Mr. DOUGLASS. Let me go on to the next chart.

Mr. HUNTER. Go on to the next chart. I know Mr. Bateman is concerned about that.

Mr. DOUGLASS. This is a listing of the four plans. Let me just run through them real quickly for the benefit of the committee, and

then I think it is best to open it up to questions and we will proceed from there.

The one that you see on the top, the baseline one, this is the plan that existed before last year when the committees got involved and told us to change the program. If you price that out, that costs about $6.6 billion over the 5-year Defense program.

The second one is an alternative that we simply put forward. This would be instead of four boats before you compete, it is three boats before you compete, one at Electric Boat, one at Newport News, and then another one at Electric Boat, then a competition starting in fiscal year 2002. This does not meet what you told us to do because the law says competition cannot start until fiscal year 2003, and it has three boats, which is different than the formula that was in the law, which was either two or four.

Alternative three is one that we feel is fully compliant with what you asked us to do but it contains an additional boat in fiscal year 2002 and the reason for that is the law says the competition would start in fiscal year 2003. We think this is a disadvantage to the Electric Boat Co. because it gaps them a year. So we gave you a plan which we felt met both the spirit and the intent of the law but was also executable from the standpoint of both of the two shipyards.

The final one is a strict, as best that we could tell you, full compliance with the way the law was laid out, that is, the four boats, two at each shipyard, gap in 2002, and the competition to begin in fiscal year 2003.

That is a summary of all of the alternatives that we considered. As you have mentioned, Mr. Chairman, it takes a long time to build a submarine. None of these will be at sea by the time we make that decision in 2003, so it is very important that we have a technology infusion program that we have some confidence in. Our little discussion about where the class begins, I did not mean to belabor that point but if you want to say the class begins in 2003 rather than with that first boat, that is——

Mr. HUNTER. Mr. Douglass, let me make this clear. We are not putting a label on it so we can say that the committee wants to call it something that it is not or make a particular appellation to this, whatever this submarine is. We wanted to make it clear we do not want to fix the design for this doggone boat until we have gone through these four constructions and we have given our designers some license and given them some freedom and then maybe there will be a choice that the Navy will have.

If we make it clear that we have fixed this boat design on this first boat, there will be a cultural mandate to build that boat within the Navy. The guy that comes up with some different ideas that takes him outside of that envelope is probably not going to see them—he is either not going to see his yard prevail or he is not going to see those changes implemented.

So we made it very clear. We argued over this term "prototype" and I asked you not to insult the intelligence of the committee by implying that somehow we wanted these things to be nonoperational boats and spend a bunch of money on submarines that would never have combat capability.

We also understood fully that these things had to baseline at NAS because that is all we have right now, is NAS, and it is not a bad submarine. It has some problems. The Baciocco Panel pointed out its strengths and its weaknesses, but it is what we have.

But to proceed, let each yard proceed from that baseline and that degree of freedom, and I think you have mentioned that you have captured in your last remarks the essence of what we want, is we want that freedom for the yards to produce, maybe take some risks, take some chances, make some changes, and then offer some choices to the Navy at the end of the four boats to go with that last one.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. That is what we want. We are not worried about who gets to put the nameplate on this damn submarine.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. We want to have something valuable for the country.

Mr. DOUGLASS. Yes, sir; I think this is where, when I said in the beginning I think you and I, our intent is the same, the other point that I would want to make about this chart is that we do not envision in fiscal year 2003 a winner-take-all competition. What we envision is that, for example, in plan No. 2, there would be three boats in the competition. The 2003 boat would go to Newport News, the 2004 boat to Electric Boat, and the second boat in 2002 would be the swing boat. The one that gave us the best deal would get that swing boat, and then a similar situation on alternative three at the bottom.

So the issue for us is—and the other point that I wanted to make about this is given where we need to go in technology and given the length of time that it takes the technology to mature, I do not anticipate that we would stop improving these boats in fiscal year 2003. I see this improvement process as a continual process throughout the life of this submarine.

That is the only way we are going to keep these designers in the business, Mr. Chairman. If we were to pick the best design in 2003 and start cranking them out like cookie-cutter and fired all the designers, where would we be in, say, 2010 or 2015 when we need to build a new boomer or we need to build another follow-on to this? We would not have any submarine designers in this country.

So we have to keep the design teams working to make the design better over the years, and the trick for us all is how do we do that in an affordable way, sir? That is what we are all trying to work on. We hope we can pay for that through competition, because this is where we really agree, I am pretty convinced, that competition brings us affordability and innovation and that is what we are trying to build into this.

That is about all I have to say as a beginning statement.

Mr. HUNTER. Mr. Secretary, thank you, and to my colleagues, we want to thank you also for concurring that our beloved Mr. Battista could be with you today and be with us and be at the table and comment on this plan, because this is of such importance to this committee. We did not have a lot of time to bring him in in a separate forum. As you know, we are chock-a-block with our hearings, but it is also good to have engagement on these issues, as tough

as they are, because that is the only way we will come to the right decision.

Tony, first, thanks for the time you have put in, both helping to put the Aspin Panel together but also being the coordinator of this panel, and thanks for working with the Senate, testifying before the Senate, and helping to put this blue ribbon panel together.

I want you to testify in your inimitable candid manner about what you think of this plan and its prospects and the general plan that we put together that passed the conference, how it fits in. What kind of rating do you give the Navy on this one? That is what I want to know.

Mr. BATTISTA. I grade on a curve. Let me say, Mr. Chairman, that I have had about 72 hours to review the Baciocco Panel report and about 48 hours to review the report forwarded to you by the Under Secretary of Defense, Paul Kaminski.

The Secretary and I go back about 25 years. In fact, I remember the letter he used to have on his wall. I have the greatest respect for him, but reasonable people can disagree.

Mr. HUNTER. And I remember some very complimentary statements that you made about the Secretary when you talked about the prospects for this program, sir. So we know you are old friends. Now, when we do that in Congress, it usually means we are ready to give them both barrels, so go ahead.

Mr. BATTISTA. The first point I would like to make is relative to the Secretary's comment about who are you going to believe, the experts or the people who build submarines? I have been in this business 38 years now and 23 of those years have been dedicated toward tracking submarine, anti-submarine warfare and architecture. I do not claim to be a naval architect or a ship designer, but I can tell you this, that if you go back over the 23 years since it has been when I first joined this committee, I can tell you that the experts told you that the Alpha, for example, was a 30-knot submarine.

And, by the way, I want to preface my remarks by asking you to do this. Do not take anything I say here this morning at face value. Make me prove it. Ask me for the documentation, the references, the people who may have said it, and I will give you that as much as I can give you in an open session.

But this was my fundamental rule when I was a staff member of this committee. Mr. Dellums, I think you may recall me telling you that. Do not take what I give you at face value. Make me prove it to you. So I agree with the Secretary. Put me in the category of Monday morning quarterback.

But they told you that it was a 30-knot submarine, and it is in the printed hearings, not in the executive session part. You can go back and you can find that out for a fact.

I remember discussing the Oscar coatings with a fellow by the name of Admiral Baciocco way back in the early 1980s, the coatings that appeared on Soviet submarines. I showed those to Mr. Bateman, Mr. Sisisky. In fact, you were very critical, Mr. Sisisky. You said, what am I doing, running my own intelligence agency.

Mr. SISISKY. You remember that, do you?

Mr. BATTISTA. Yes, I remember the whole nine yards on that. And my point to you was, it does not really matter where the intelligence comes from, it is what it says that is important to you.

But Admiral Baciocco recognized that those coatings were really nonconventional and he attempted on the Typhoon and on the Oscar, I believe on the Oscar, to have somebody actually try to replicate those coatings here in the United States. We were not able to do it. I verified this with him when I briefed the Secretary's panel, which Admiral Baciocco headed.

Remember the experts told you that the *Seawolf* would cost $1.6 billion a copy? I told you back then that it was $2.8 billion. I was wrong. It is more than $2.8 billion.

So while I have never built a submarine in my life, I can tell you that if you look at the track record, if you look at the printed hearings, if you look at the testimony, you will find that the experts were right more than the builders in many, many areas of submarine and anti-submarine warfare technology.

The other day, I went to appear before Senator Cohen's panel and I restated the assessment I gave you last year in September, that one, the Soviets own the quietest submarine in the water today, the Akoula. Do not take that at face value. Make me prove that to you.

Two, I told you that the Severed Binsk and the fifth generation submarine that they were producing would pale the Akoula. That, I cannot prove to you beyond reasonable doubt today.

I told you that the United States was not spending enough on submarine technology. You do not have to be a rocket scientist to realize that. Just look at their budget.

I told you that the new attack submarine, in my opinion, was not going to be good enough. I reviewed the Navy program about a week ago with Admiral Frick, and I will get into that more later, but let me say, they have done an outstanding job designing their submarine. It is truly a major step forward. What it is not, however, is robust enough in its technology to serve as a hedge against the Russian threat over the next 20 or 30 years.

The Secretary pointed out that the *Seawolf* is not in the water yet so we cannot tell you what it is going to do or what it is not going to do. To a point, I would agree with that. We cannot tell you, for example, if it is going to reach or exceed its level of acoustic quieting, but what I can tell you is this. It will not parallel the level of Russian non-acoustic quieting. I think I can prove that to you beyond a reasonable doubt.

I can tell you that the Soviets, not the Russians, the Soviets over 20 years ago were writing about hydrodynamic effects and what they mean to submarines, and I gave a parallel to the Cohen subcommittee I said, if I wanted to break into your house, I could wear a pair of shoes that actually were very quiet, did not squeak. I can have dark clothing on. I can attack your home on a moonless night. However, my stealth characteristics would go away if I were to wear a flashlight in my hat.

What you have in today's U.S. submarines is a flashlight on the hat. It is acoustically very quiet, but there is more to quieting than just the issue of acoustics. Submarines going through the water go through what is called a boundary layer. Depending on the turbu-

lence or the laminar characteristics of that boundary layer, you can spin off vortices, just like an aircraft spins off vortices.

Those vortices could be controlled, they could be used to your advantage, as in the case of, I believe it was the X–31, an experimental aircraft where they took the vortices and spun them toward the fuselage to get added lift. They serve as a flashlight, however, if they are not controlled properly.

There is no such design in either the *Seawolf* or the new attack submarine, and I have verified that with Admiral Baciocco. I will give you an assessment right now that is shared by a lot of people in the community that other countries are pursuing hydrodynamics in areas for which the U.S. Navy has neither an understanding or a program. We did not have one 20 years ago, we did not have one 10 years ago, and we do not have one today, and that is sad.

Where do we go from here? I would tell you that we should continue the design and development of the new attack submarine but not as the lead ship of a new class. It should be developed as strictly an operational prototype. I think both yards ought to be kept in this business. It is imperative that both Newport News and Electric Boat stay in the submarine business over the foreseeable future because nobody has the cornerstone on brains in these areas where we are completely void of a substantial knowledge in that technology. So it is imperative that both these yards keep going.

Next, I would say if you truly want the submarine that this committee delineated last year, in September, you need a significant research and develop effort in a followon to the new attack submarine. As I said earlier, they have done a terrific job. This boat has open architecture in terms of its combat system. The modular construction is a major transition from the last generation.

This is truly a remarkable submarine, but do you know what it represents? The submarine, Mr. Sisisky, that you put $100 million into when we had that confrontation in the Joint Seapower Research and Development Subcommittee hearings, you started that advance submarine technology program. You never got the return on investment that you had hoped to get. Mr. Bateman, you were there at the time.

This new attack submarine would have been the ideal boat for the mid-1980's era. It is still going to be a good submarine, and I suggest you continue it because it does represent a major transition from the classical or traditional way of building submarines to contemporary submarine design and development. It really is a good boat. My point is, it is not going to be good enough when you consider what the Russians are doing.

On the issue of cost, most people in the Pentagon think you can get the cost down by, oh well, we will use cuts and things like that, but what they fail to pay attention to is the cost reduction you could get as a consequence of some of the technologies. For example, the Soviets go deep. Why do they go deep? The Navy's response is, well, we have torpedoes that can get down there and get them. But they realize that in that area of depth, what they get are vortex phenomenology that they can turn around and use to get quieting, to get survivability, and to get speed.

Do you know what the Russians have written in their literature, and by the way, they have proven it, that through control of the

boundary layer, through hull drag reduction, you can get 50 to—and I am confident of this number—90 percent drag reduction. Our guys do not understand that. If you do not believe me, take a look at Admiral Baciocco's report. He makes the same statement in there about our understanding of nonacoustics.

So I think you should proceed. Now, do the Department reports comply with the law? I find it hard to believe in either spirit or intent. When I read the Under Secretary's report to you, it says, thank you, Mr. Chairman, thank you, Congress. We heard what you have to say. Now be quiet. We are going to proceed with this program just the way we had planned. You can get that out of the covering letter signed by Dr. Kaminski. You can get that out of the executive summary.

There is a downside to that. The downside is if you turn down the plan, which you should, it is going to stop the *Seawolf* and I do not think you want to do that. The reason you do not want to do that is you are committed to that boat, and if you stop it right now, all you are going to do is add cost to it and not get any requisite return on that investment. So you are going to have to pay careful attention to that, how are you going to do it.

But by and large, I would have to say, no, the plan does not comply with either the spirit or the intent of what you would hope to get, and as I told Senator Cohen, Senator, the conference on the Authorization Act for 1996 once again legislates mediocrity, because the legal folks over in the Pentagon are going to take that language—they have already taken that language, they have massaged it, and that is what led to the report that says, Mr. Chairman, Congress, thanks a lot. We heard you. Now be quiet and let us proceed—business as usual.

That is a rather harsh assessment, but I never took my lunch when I worked for you 23 years ago. I was never politically correct, and I find it even more difficult to be politically correct today, but that is how I feel about the overall plan. I think, again, the Navy has done a pretty terrific job on this new attack submarine but we have got to do something else. When you talk about affordability, believe me, there is plenty of money in the defense budget to address this critical area.

You know what? You have $65 billion, at least, worth of carrier battle group out at sea. This is a major element, a major factor in the survivability of that carrier battle group, the submarine. I have no problem understanding the requirement to develop submarines in the year 2000. But even a $2 billion submarine represents, what, less than 3 percent of the cost of that carrier battle group.

I am going to tell you right now, Mr. Chairman, as I told you about 15 years ago, we have Victor III's popping up in the middle of our exercises and we never knew they were there until two or three weeks after when we were reducing the data. We should never be in that sort of profile again. That is the importance that I place on submarine technology.

Mr. HUNTER. Mr. Battista, thank you for your statement. Before we go to questions, just tell us how you would proceed with the plan or with the opportunity that we have now. We are on the verge of building four boats and then going to a class after we have fixed that. How would you proceed at this point, and when you ad-

dress the yards and the design and those aspects, also address perhaps the R&D dollars that we need to put into the pipeline, so as John Foster says, we have some new technology when we get to the place where we can insert it. What would you do at this point?

Mr. BATTISTA. First of all, I would continue the new attack submarine. I would add a fifth boat and that fifth boat would be with the guidance to Newport News and Electric Boat, folks, we are not constraining you in any way. We are going to read you into the intelligence community world. We are going to read you into the research and development world. We are going to tell you what the Soviets have done in boundary layer work, and by the way, this is not just fiction.

You saw this in the Mike. If you looked at photographs of the Mike, you would not find a bow wave. Do you know why? Because they understood the phenomenology, they understood how you put slots up in the forward end of this thing, how marine life really works, and by the way, I showed you, Mr. Sisisky, a coating on the Oscar that was an exact replica of the cellular structure of some of the marine life. Do you remember that photograph?

Mr. SISISKY. Yes.

Mr. BATTISTA. That was implemented in the Oscar. So I would turn both yards loose on a followon design and get it as soon as we can but not emphasize IOC in any way and just let them come in with the best that they can do.

I will tell you what the result of that will be. It will be the Russians sitting at a hearing like this worrying about what they are going to do in submarine technology for the next 30 years and not the United States. These yards both have the innovative ability to give you a submarine that is even better than what I consider to be the very fine new attack submarine that you have today.

Mr. HUNTER. What kind of innovation license would you give them for the next four boats that they are going to be building, the boats at hand? Would you let them depart from this design where it makes sense?

Mr. BATTISTA. If you are not Initial Operational Capability [IOC]-driven, you can do that. If you are IOC-driven, you cannot do that. There are options to keeping the industrial base alive. I do not want to get into it in open session, and I know there is disagreement with my assessment of the improved 688 relative to quieting and performance, but again, I can prove that to you beyond a reasonable doubt.

But in terms of R&D, you asked how much, minimum $100 million a year. You might ask the Navy, if you think this submarine has the hydrodynamic growth to keep your quieting across the spectrum intact, then how, by God, are you going to get compressed air, get these slots, heat the water, heat the area between the hull and the plating to affect, let us say, maximization in the undisrupted area of the boundary layer? How are you going to do that?

You cannot do that in a conventional hull, no more so than you can say, here is an F–16. Go make it look like an F–117. You cannot do that. There are certain constraints. You can get a couple of DB more improvement, but you will never really get there from

Mr. HUNTER. Thank you, Mr. Battista.

Mr. Dellums.

Mr. DELLUMS. I would like to ask a very pedestrian question, and that is the cost. Has the Navy costed out the 1996 authorization bill directive that requires you to build four submarines with different technology packages? Have you costed all that out?

Mr. DOUGLASS. Congressman Dellums, we have priced out the plan that you see here and the plan is going to cost, the way we have laid it out, about $4 billion over what the baseline program was. If you were to go and just say, totally different designs, that these were four different operational prototypes, we have not priced that out, but it has been priced out by a number of people, including some of the experts on the panel that the chairman has talked about, and that plan is $8 billion over what is in the baseline.

So the plain facts are, it costs a lot of money to go design a submarine. What we have started with is the base design and we are going to improve that design, and to move the additional boats into the Future Year Defense Plan (FYDP) and to put this extra technology is probably about $4 billion over the baseline budget. But if you were just to disconnect it, I would say it would probably be between $8 and $12 billion over the baseline. That is a lot of money.

Mr. DELLUMS. With either of those profiles, $8, $12, $4 billion, can the Navy absorb that within the parameters of your budget authority as it is laid out?

Mr. DOUGLASS. No, sir.

Mr. DELLUMS. That answers my fundamental question.

Mr. HUNTER. Will my friend yield for a second?

Mr. DELLUMS. Of course.

Mr. HUNTER. I thank my friend for yielding. I just wanted to make it clear that we never, never, never said we were going to build, or asked the Navy to design four totally different operational prototype submarines with no commonality of design. What we said was we wanted to take the NAS as a base but yet the yards vary from that design where it made sense and where they ran the variants that they proposed past the Navy and got an OK and implemented that.

So that scare figure, I think Admiral DeMars threw that out first, that we are going to build four totally different-type classes of submarines, was never suggested by the committee. We always said we would start with NAS, because we got the same briefing, that it would cost a lot of money to make totally different designs. We start with the (NAS) as a base design, and that's all we have right now, is the NAS. It is a pretty good submarine, as Mr. Battista said.

But we allow the yards freedom to vary from that, and the message that I got from the yards was that there would be very little variance in the first couple of boats that are built because what you have is what you have. But the second boat that each one would build could have some substantial variation and could have some marked improvements in it in terms of warfighting capability and cost reduction.

We never suggested, Mr. Dellums, in our plan—and the Navy has not responded to that—that there were going to be four totally

different boats with brand new, unique designs to each one. Is that right, Mr. Douglass?

Mr. DOUGLASS. Yes, that is right. That is what I was trying to make clear, is that we are starting with a baseline design and we are going to improve that as we go along. But I want to add further, those improvements continue beyond the first four boats. If we really are going to do this right, we have to keep making those improvements over time but they have to be matched by affordability improvements.

Now, there is some history, if you look at the way we built boats in the past, that when you first begin to inject new technology into them, the price does rise, but as you keep working on it, you can find ways to get the price out and keep going down that affordability curve, and that is our objective, sir.

Mr. BATTISTA. If I might, Mr. Dellums, in response to your question, when the Pentagon does not want to do something, they will give you a price that makes it very unattractive. I would just like to bring up a little bit of history.

The YF–16, the thing we call the F–16 today, at a time when a new aircraft development was costing $3 billion, do you know that thing was developed for $45 million? Do you know what the first contractor estimate to make a combat-worthy was before they decided to hang a lot more on it? It was $263 million. I have no problem remembering that number. There were some who did not want to do that program, so the estimates quickly were going up, the ones that were presented to the Congress.

Mr. Longley, you mentioned the DDG–51 before. There is an outstanding ship. I think it is the first truly major surface combatant we built since the battleship and do you know what? This committee killed it. Do you know why we killed it? It was not good enough. It had aluminum in the superstructure, as originally proposed by John Lehman. It basically was not a survivable ship, wave guides run externally, all of the things that we learned we should not do. Do you remember when the *Warden* took a hit in the Gulf of Tonkin? It did not take a hit, it was just fragments that destroyed the wave guides and left it dead in the water.

But Mr. Longley, this committee insisted that that ship be made survivable, and it may be an anomaly relative to what the Secretary just said about the cost, but that ship right now, if I understand the story, is below the target cost or at the target cost. So you built that thing—you forced the Navy to build that thing in a survivable way and——

Mr. DELLUMS. Mr. Chairman, might I regain my prerogatives here? The reason why I raised the cost question, Mr. Battista and members of the panel, is because the world has changed since you served on this committee. We are operating, first, in the context of the post-cold war, and second, we are operating within the constraints of a balanced budget environment. That is real. My colleagues on this side of the committee have made that the order of the day, a 7-year balanced budget, you will do this, fact No. 1.

Fact No. 2, is my colleagues on the other side of the committee looked at the Bottom-Up Review and said, it is $45 billion underfunded. The administration put $25 billion back in. The Kasich Budget Committee gave these fellows $20 billion additional to

bring it here. They spent $7 billion of that $20 billion last year. As I do the arithmetic, they have $13 billion left to spend. They are going to spend about $13 billion this year putting this and that and the other thing in the bill.

How are you going to pay for all this stuff in the third year, the fourth year, the fifth year, the sixth year, the seventh year? That is real. You cannot dream that away. So the reason why I am saying, what is the cost here, is because somebody has to pay the tab. This is not dream world.

During the Reagan era when we went from Jimmy Carter's $173 or $176 billion to over $300 billion a year and leveled out for 10 years, money was flowing all over the place. This world has changed. I think that we have to continue to ask the question, how much does all this stuff cost and how are you going to pay for it?

Building ships is incredible, because the spend-out is over a long period of time and you can get your nose under the tent for a few bucks this year, but at some point down the road you are going to pay. So I am asking the question, have you costed all this out? It has to be dealt with in very real terms.

We cannot dream these things away, Mr. Chairman, because you folks have established a very tight economic framework and every single day I am going to keep asking the question, when you spend out your $20 billion, I am going to start asking, how are you going to pay for it after you have spent your $20 billion? So I am keeping a tab, and I think it is important to do that.

I want to back off because I asked what I wanted to ask, which was the cost question. At some point, we need to get into the competition question, but I will ask those questions for the record.

Let me conclude just simply with this. One of the things that concerns me, and I can appreciate the rationale for building new attack submarines, but what I have difficulty understanding is why we have to do that in relationship to the Russians. That is like deja vu. It was us and the Soviet Union, but the cold war is over. It opens up different options, different possibilities.

Why do we have to do whatever we do in relationship to the Russians? We have other capacities to engage these folks. We are engaged in Bosnia with these people shaking hands. Yesterday, we had a U.S. military person sitting at the table saying, man, a three-star Russian general and I are like this. We are communicating. The military people are communicating with each other, and here we are still fighting the cold war. We have people that have by leaps and bounds begun to move beyond that.

So I am not sure that I understand the rationale of why we have to have this kind of submarine in relationship to the Russian submarine when the world has changed and I think our minds have got to change and I see greater possibilities than us continuing to just heat up the cold war and bring it forward. I am concerned about that.

Mr. DOUGLASS. Congressman Dellums, can I comment on that? Bless your heart, I remember with affection some of the conversations you and I had in Brussels as the wall was coming down. I had the wonderful privilege of going to Berlin that New Year's Eve in 1989 as the beginning of this decade began and I went up on the Brandenberg Gate with a bunch of Russian generals and

watched the Berliners celebrate New Year's Eve 1989 to 1990 when everything was changing and the Warsaw Pact was falling apart and the Soviet Union was dissolving and I met a lot of those Russian generals and some of them are my friends today.

You are right, sir. This world has changed. We do not even have a name for this era we are in. We call it the post-cold war era. We have not figured out where we are going.

You are absolutely right. There are a lot of affordability issues out there and the Navy is concerned about that. We have to be prepared to respond across a broad range of threats in a new world with a new kind of threat and we cannot spend all of our money on submarines. We have to figure out that this has to be balanced with our surface ship requirements, our airplane requirements, our carrier requirements, the money that we are going to need to pay our sailors in the future, this new arsenal ship that is coming down the pike, the new surface combatant 21, all of the equipment we need for our Marine Corps troops.

If you just stop with the Marine Corps for just a minute and ask yourself, who is America's 9–1–1 force today? It is the U.S. Marine Corps. They are the people that are going to be going to the Bosnias, the Haitis, the Somalias of the future. We have to make sure they are equipped.

So we cannot spend the whole budget on submarines and that is the essence of what we have tried to do, Mr. Dellums, is give an affordable plan here, a reasonable balance in the era that we are in.

So sir, I applaud your comments. I think that balance is needed, but we are trying to find that balance and that is what makes our country great, is that we have the kind of dialog that we are having here today between our military leadership and our legislative branch. That is why we are the best nation in the world, because we have this mechanism, these discussions. They do not do this in other countries. I have lived in Europe and in Asia and seen how they do their defense budgets. They do not have this kind of dialog. That is what makes us great, is this balance, and I applaud what you said, sir.

Mr. HUNTER. The Chair would just comment. With respect to my friend and to my friend the Under Secretary, our job is to meet capabilities because we do not know when motives might change and politicians might change, especially in what is left of the Soviet Union. Underwater warfare, submarine warfare, is one area where interestingly, even though the Russians are going broke, they are spending a lot of money and they are making great strides.

Ron, when you and I sat here in 1982, if we were told that we would have the CNO tell us in 1995 that the most quiet submarine in the water today is a Russian submarine, we would have laughed him out of the hearing room because what we were told was they would never come close to catching us.

So the point is, we have to meet capabilities, and with respect to priorities, Mr. Secretary, we moved an LPD and an LHD forward in the budget last year so that we would have some room for submarines. DOD did a great maneuver, a great follow-on maneuver. They then moved another LHD forward this year, or LPD, so they immediately filled in the space that we would have used to

fund the submarine program, thereby creating a little bit of a friction and what you could anticipate would be a battle between the surface and the sub-surface Congressional constituencies. It was a real smart move. I would say that it was not done in good faith.

So there was funding available to flesh out this plan until the Navy then accelerated a surface ship program, which they did not indicate last year they wanted to do. In fact, they objected initially to the accelerations that we made.

Mr. Battista, did you have an answer, and then we are going to get on to the other members.

Mr. BATTISTA. I just wanted to say, Mr. Dellums, you remember when Les asked me during a markup, we spent $1 trillion under the Reagan administration on defense, what did we get for it? I do not know if you recall my answer, $750 billion worth of output because of all the duplication of effort and needless redundancy that we had ongoing over there.

I still feel the same way today. When they say they cannot afford another submarine and I look at this budget and I see $2 to $3 billion in there for a corporate information management system, enterprise integration, to automate the administrative functions of the Pentagon, when you can go out and buy the damn thing from a commercial software house like General Motors does today and all of the other big companies do today, I have to sit back and say, my God, how can we sit here and say we cannot buy this when we are throwing money away in these areas here? When I see the Army buying hundreds of millions of dollars of things that they know do not work, I have to really get concerned over that relative to a submarine.

The reason I am concerned about submarines is that you are right. The cold war is over, but the Russians, as the chairman pointed out, still put the highest priority on submarines. That is why they have two going into the water in the next 5 years. That does not bother me as much as their eagerness to sell this technology to other countries. The Iranians now have two Kilos, Russian submarines. They are selling them all over. I think the Iraqis are going to wind up with these things. I think the entire Middle East, they are going to proliferate these things all over, this technology and this capability.

So you are right. The cold war is over. We are not doing this for the Russians, we are doing this to keep the ceilings open and to protect that $65 or $70 billion carrier battle group with about 2 percent of that cost going to the submarine. That is why I think it is so important. Why are you spending money building all these airplanes if the carrier battle group is going to be vulnerable? It is important that we look at this thing as a system.

But you are right on the dollars. I do not focus so much on how much money for defense as much as I do how the money is being spent. And even to this day—it has been going on for over a decade—we are still not efficient over in that building. John talks about the acquisition reform. Yes, we have done a lot. You know what? There are about 10 miles of this acquisition reform road to go down yet. We still have not scratched the surface.

Mr. HUNTER. I thank the gentleman.

Mr. Bateman.

Mr. BATEMAN. Wow.

Mr. HUNTER. Mr. Bateman, you are a patient gentleman, as are all of the submarine constituency representatives, and we do appreciate you having some endurance today.

Mr. BATEMAN. Let me just make a few observations, and then I do have some specific and limited questions I would like to ask Secretary Douglas.

Last year, we had this towering debate about the submarine construction program. I was very pleased that the Speaker and our chairman today invited my participation in trying to work out what seemed to be the loggerheads between the Department of Defense, the Department of the Navy, and the view here on Capitol Hill.

There were two overriding things that we were seeking to obtain as the congressional objectives. One was the denial of a procurement strategy that picked one submarine builder over the other without even any competition as to who could do the job better or cheaper, which I think is so obviously flawed that Congress could not and did not accept it, nor should I think Congress accept any plan this year that is predicated on any such premise.

The second thing that was at issue was more a matter of the rhetoric and the semantics of operational prototypes views by some as being some horrific thing that says you are going to build four distinctly different submarines as opposed to build four submarines and make each successive one as good as you can make it as long as it is affordable, cost effective, and the technology you have confidence in. That is the common sense that was written into the plan that Congress came up with and put in the fiscal year 1996 authorization bill. I would like to restore us to that common sense.

The other observation that perhaps needs to be made is in the report that the Under Secretary of Defense has submitted to us, and I am not speaking of here concerns that I have with you, Secretary Douglas, or with the Navy, but it does concern me that within the past 2 weeks, the Secretary of Defense sat where you are sitting and reaffirmed his support for the submarine construction plan that was signed off on by the administration and the Department of Defense last year.

Yet this report virtually invites not implementing that plan, suggests other plans which I think undermine the basic notion of building four submarines that the Nation needs, making each one better, striving for improvements in technology and in affordability, and doing it in a way that you have a level playing field competition. There is disappointment, I think, that I have to express that we get a report that does not focus on implementing that plan and the common sense underlying that plan and get on with it.

In terms of the specific questions that I have, the fiscal year 1996 authorization bill contemplated a significant investment in research and development on undersea warfare technology and it also directed the expenditure of funds in order to see that we preserve the two-yard design capability. You have mentioned, and I applaud the fact, that there has been some modest amount of money from fiscal year 1996 money, presumably, directed toward Newport News.

But if you are really serious about the design capability and being able to maintain it in both yards in a robust way, you cannot

have one yard with the design contractor involvement that is way up here while the other one is way down here, and it has been that way for an extended period of time. I would hope that we would see some plan that you could come and brief me on when we may expect more money and specifically directed involvement on the part of Newport News.

I am aware of the memorandum of understanding. I applaud the fact that one exists, but I think we need to see some specifics of the movement of the funds that make it possible for us to do more than talk about, theoretically, we ought to have two design capabilities.

Mr. DOUGLASS. Mr. Bateman, you are, as always, a real gentleman, sir, in the way you get your points across, and I applaud you for that.

In regard to the tonal differences between the commitment that you thought you had and that report, I cannot speak to that, sir. I tried as best I could to make that report on the target——

Mr. BATEMAN. Certainly, my quarrel is not with you.

Mr. DOUGLASS [continuing]. And a lot of folks between me and when that thing was signed out and the tonal qualities, they will have to speak for that. But I can tell you that in the final approvals of this, the commitment that was made has been reaffirmed, is my understanding, and so we are committed to the competition. I am trying to do everything I can to make that as fair as possible.

In regard to the design money, sir, there is design money in the fiscal year 1997 budget request to continue this design transfer from Electric Boat down to Newport News. I fought hard to get it in there and I agree with you, it has to be in there. I will be at your disposal to work with you, to make sure that that money continues to be applied in an equitable manner.

I have really done everything that I could think of to level the playing ground and be fair to both of these yards. There are some things you have to do to protect Newport News' interest and there are other things you have to do to protect Electric Boat's interest. For example, I think that we need that boat in the outyears and not to gap the Electric Boat design. It is not fair to give the other guys a boat every other year and not give them one every other year.

So I have tried to find equality there and I am going to continue to work it, sir. My commitment to you is any time you are concerned about the way we are executing after the committee meets again this year and makes its deliberation, I will be right over to work with you.

Mr. BATEMAN. Just let me, if I may, react to that very briefly, Mr. Chairman. You mentioned there is money requested in fiscal year 1997 for design work and you would anticipate that portions of that money, unspecified portions, would be allocated for enhancing Newport News participation. That still leaves the question of was there not additional money authorized and available for fiscal year 1996 that has not yet been allocated, and that is one of——

Mr. DOUGLASS. No, sir. All of that has been allocated. We were given $10 million to begin the design transfer. That was all allocated, and I very carefully worked with Newport News to make sure they were satisfied with the allocation. I have met with them

a number of times on that and it is my understanding they are satisfied with that.

Mr. BATEMAN. You are probably right. My recollection was more than 10, but that may have been——

Mr. DOUGLASS. No, it was 10 in the bill in 1996 to begin the design transfer process. This has been a ticklish negotiation. I have been teasing folks. Sometimes when you work between the two yards it is kind of like shuttle diplomacy. I used to work Bosnia when I was in the Senate and it sort of reminds me sometimes of how you have to go back and forth a little bit there.

But there has been good faith in the top management in both of these yards to work together. I am encouraged by the attitude in both of the yards. They have taken a very constructive attitude toward this. They are counting on the chairman of this committee and me to meet our commitments, to get them in the design process in some meaningful way, and, by golly, we have to follow through on that as a team to work together. I have made that commitment to those two yards and as long as I am over there, I am going to keep pursuing it.

So I feel pretty good that we are getting the two yards onto what everybody agrees is an equitable approach to the program. There are affordability issues here. We have to keep working on that. That is pretty much where we are, sir.

Mr. BATEMAN. The $100 million that I have been referring to was the money directed to DARPA——

Mr. DOUGLASS. To DARPA, yes, sir.

Mr. BATEMAN [continuing]. For R&D advanced technology for underwater warfare. Is that money being utilized or is there a plan by which it can be utilized?

Mr. DOUGLASS. I hope so, sir. I do not control the DARPA people, and——

Mr. BATEMAN. I know you do not, but I would certainly hope they are consulting with you.

Mr. DOUGLASS. We are, and we are trying to work with them. I have to be honest with the committee, and Mr. Battista can tell you, because he sat there in the same hearing; I recommended that a substantial portion of the out-year research be done over at DARPA, because that is how in the past we have been able to get these breakthrough technologies funded.

The current Director of DARPA is not very interested in that, and he testified that he felt the Navy should do it. I think Tony testified on the record that he also thought the Navy should do it, because if DARPA is not interested in it, you can lead a horse to water but can you make them drink? So we have to work that out within the Department.

Frankly, I think if the decision is made for them to pick up a part of the program, and I think that is the right way to do it, they will get enthused about it. They have good people. We will put good Navy people over there. I am particularly interested in getting DARPA involved in some of the hydrodynamic work that Tony has mentioned, because Tony is right. We need to do more in hydrodynamics, and I am going to do more in that area.

Mr. BATEMAN. Let me make the suggestion, I think the Navy, given the way we wrote the 1996 bill, is going to have to be more

proactive in its interest and in the Nation's interest in putting before DARPA the kinds of things that they ought to be using that money for. If you find that they are resisting, then I suspect there are a number of members of the Congress who would like to be aware of that. So I think you need to be proactive——

Mr. DOUGLASS. We will work them hard. The leadership over there are good people, and we just have not got it all lined up yet, sir.

Mr. BATEMAN. I am not challenging that.

Mr. BATTISTA. Mr. Bateman, let me say that I have a very different view from the one I had last year. DARPA is no longer—personal opinion—the high risk, high payoff, aggressive kind of an organization that it used to be.

My suggestion to you right now is give serious consideration in taking that $100 million and giving it back to the Navy to be used with the yards, Electric Boat and Newport News for innovation and technology implementation; because frankly, I think you are dealing with an agency right now that does not even want this money. They are not interested in it.

Mr. BATEMAN. My problem with that is that we apparently made a mistake in the fiscal year 1996 bill as to where we directed the money, but that is where we did direct it. But that should not leave either the Navy or us without any influence on whether or not they use it effectively; and if the most effective use of it is to turn it over to the two shipbuilders with direction as to what you want them to do with it, then we ought to get about doing that.

Mr. BATTISTA. Yes, and I think it is very important that the shipbuilders be brought into the intelligence area so that they have a full appreciation for what the other side has been doing. That is critical.

Mr. HUNTER. I thank the gentleman.

The gentlelady from Connecticut, Ms. DeLauro.

Ms. DELAURO. Thank you very much, Mr. Chairman. I want to thank our panel today for your testimony. I think it is particularly important, given that we had the release this week of the Secretary's report.

Let me just try to, and more for my own sake than maybe for some others, make this as simple as possible. My description of what we are trying to do here is that we are trying to build submarines that meet the Navy's requirements, and we need to do so in a way that allows new technology to be incorporated as the technology and the Navy's requirements evolve. That is——

Mr. DOUGLASS. Right on. We agree with that.

Ms. DELAURO. This may be viewed as a flip comment, but I am going to do it anyway. This is not a poster contest. It is not a slogan contest, to pick out the best one and to see what we have here, the several best people. This is because, as the ranking member has said, the issue is we are talking about billions of dollars in a time when we are under some real constraint for dollars.

With that in terms of how I see this process, let me just, if I can, ask a few questions. I am going to address my questions to Admiral Lopez, but I will be happy for an answer from anyone. The report this week says that the baseline new attack submarine satisfies military requirements. Can you comment on how the new attack

submarine meets the Navy's requirements now, even before we have any potential technological advancements that are added?

Admiral LOPEZ. We looked at requirements in the sense of not just submarines but balancing the whole Navy. I have a budget that I have to live within and I buy or I recommend to the CNO and the Secretary the best-balanced Navy that I can get for the money. We try and buy as much technology and innovation as we can, and Mr. Douglass then takes it and tries to incorporate that.

But we look at stealth and speed and depth and sensors and training and American sailors, and we think that this submarine is going to be what we need in the near term. I do not deny that technology is not going to be inserted, as I recall. I am not a submariner, but I am quite familiar with what we do in DDG–51's and what we did on the 688 submarine. That submarine has gone through a dozen or 13 flights and is now 60 percent or better different than the original submarine.

So I guess I am agreeing with the thrust of what we are trying to do here; because we want to insert new technology, but we can only do it at an affordable pace.

Ms. DELAURO. My next question is, then how does the new attack submarine design address the likely need to add new capabilities in the future? How does this compare to earlier classes of submarines, such as the 688, the *Los Angeles* class?

Admiral LOPEZ. It compares really favorably with the 688, or it is much better if you take stealth. It is going to have the same stealth as the *Seawolf.* It is going to have enough speed. It is going to have enough depth. It is going to be able to afford that carrier battle group the protection that it needs. We are quite comfortable with that in comparison to 688's, in comparison to *Seawolf*'s.

Mr. HUNTER. If the gentlelady will yield on that question, because that is a very important question. Could you make the same comparison with respect to the *Akoula*—speed, depth, weapons, and quieting?

Admiral LOPEZ. I would not like to give you the specificity of an intelligence estimate on the *Akoula,* but I would be glad to come back in a classified way and do that. However, I am quite comfortable with the charts that you have seen that are unclassified, particularly in stealthiness, that this ship is just fine versus the *Akoula,* once it is built.

Mr. HUNTER. There is not a justifying on the chart but there is a convergence of stealth——

Admiral LOPEZ. Yes.

Mr. HUNTER [continuing]. And the open documents that we have basically show that it is not perceptibly quieter than the *Akoula.*

Mr. DOUGLASS. Can I comment on that, Congressman Hunter, as a technologist? Let me——

Mr. HUNTER. Wait a minute. Before we go further, depth—with respect to the *Akoula,* what can it do, generally speaking, better or worse? Can you comment on that, Admiral Lopez?

Admiral LOPEZ. Could I come back to you in a classified session on that, sir?

Mr. HUNTER. How about weapons load? Can you comment on that in open session?

Admiral LOPEZ. I can comment on that vis-a-vis the *Seawolf.* It is going to have less weapons numbers than the *Seawolf* but we can—this best meets our requirement for what we can afford. If we had more money, we would put more technology in the ship.

Mr. HUNTER. OK.

Mr. DOUGLASS. Let me put this in context——

Mr. HUNTER. Go ahead, and then it is back to you, Ms. DeLauro.

Mr. DOUGLASS [continuing]. Because I think the Congresswoman is on to a really important issue here, and that is that the performance of a weapons system is made up of many factors, and in this particular case, one of the ones that everybody seems to be obsessed with is the issue of various kinds of ways you can track it. In other words, Tony has talked about hydrodynamic issues and a lot of people talk about acoustic issues and so on.

We can figure out ways, and we have to be careful here because some of the ways are classified, but there are ways to measure what the other guys are doing and know. But what we do not know is what is inside that submarine. We do not know how good their sensors are, and we do not know how good their signal processing is. We do not know how well their crews are trained. We have some idea, for example, on crew training that they are not even in the ballpark with us.

So if you take the whole thing together, you come out with a different answer than if you just take one parameter, which is quieting, and incidentally, that parameter is not uniform across the whole spectrum. For example, you can talk about quieting at low speed and quieting at high speed and so on, and you can make comments in an unclassified session which, to a layman, are very, very misleading.

The American public listens to this and says, oh my God, the roof is falling in. But when you take the whole picture, much of which has to be said in classified session, you come out with a different picture. If you go back to what Mr. Dellums and others are saying about reasonableness here, that is where this whole picture comes in.

So you asked what was different, ma'am, about new attack compared to the past. The inside of that new attack submarine—Tony has been real interested in the outside, and rightfully so and we have to do some things on the outside to make it better, but the inside is going to be significantly different. We are substantially ahead of the rest of the world on what is on the inside and we are going to get a lot better.

One of the things we are going to do is we are going to build that architecture in a way that we can constantly modernize it, absolutely, and that is an area where we are going to have a lot of work. There is a lot of synergism, but what is on the inside of that submarine and what is going to be on our surface ships and the kind of towed arrays that we can use to find the other guy.

So when you look at it from a holistic picture and you listen to what Admiral Lopez and I are trying to say about balancing our program for this new world that we live in, that is the picture we have to deal with. We cannot be obsessed with one particular thrust.

Ms. DELAURO. So that you have the ability to add capability?

Mr. DOUGLASS. Yes, ma'am.

Ms. DELAURO. Let me just ask—oh, I am sorry, Admiral.

Admiral LOPEZ. I just wanted to add one thing to that last statement you made and that is just to complete what the Secretary has said. The modularity concept is one-stop shopping. The chairman asked about weaponry versus the *Seawolf.* You can backfit additional Tomahawk, an entire section of VLS (Vertical Launch System) launchers to make this a tremendously formidable system as a strike platform, or you could put a section in there to launch 200 soft forces, to backfit it after the *Ohio* class goes out of business to be a Trident, albeit it would carry fewer Tridents. It is smaller.

But we are trying to be as innovative in our requirements as we can, and the acquisition personnel led by the Secretary are being as responsive as they can to our needs.

Ms. DELAURO. A final question, and I will put some into the record. If improvements are made in the new attack submarine in successive boats, can you explain how design advancements will be coordinated between the two shipyards so that we are talking about standard design?

Mr. DOUGLASS. Yes, ma'am. In a notional way, I can.

Ms. DELAURO. Yes; I understand.

Mr. DOUGLASS. As you may recall, I mentioned to you that we are starting out with an electronic design, a virtual design of the submarine. In the old days, what we used to do is we actually used to build wooden mock-ups and things and measure them and so on and then they would make drawings and they would send the drawings down to the floor and the guys on the floor would try to figure out how to build the parts and then people would come back and try to put them together and say, "My God, this pipe will not fit, because we have something that we have put in before in the way, and there would be all kinds of work-arounds and this takes a long, long time."

If you could go down and see how much we have improved, for example, between the first *Seawolf* and the third *Seawolf*——

Ms. DELAURO. I have been to Electric Boat.

Mr. DOUGLASS. You know this old story here. What we are trying to do—

Mr. BATEMAN. Come to Newport News.

Ms. DELAURO. I would be delighted to, Mr. Bateman.

Mr. DOUGLASS [continuing]. Is take that virtual design, move it from the North to the South, give both shipyards the opportunity to propose innovative changes to that design in a variety of different ways. Then we have to make a decision.

Once we have said, one of them says to us——let me just give you an example. If they came to us and said, we have a dynamite new design for a new sail, the conning tower on the submarine, it does some of the things that Tony is talking about for hydrodynamic wake suppression and so on, we might make the decision that we want them both to build that new sail, or we might say up north or down south, you build two or three with this new sail. We want to keep two or three with the other.

Or we might do as Admiral Lopez has said. Down south, you build us a couple of versions with extra modules in the middle because we want to use those versions to bring our soft forces up

close to the enemy and be able to let them out and do their secret mission. You guys in the other shipyard, you concentrate on a design that could carry more Tomahawk missiles.

We have not gotten to the point where we could tell you that we want to be able to direct them, but we want to have the ability to have them build uniquely in their yards their design or both build exactly the same.

Ms. DELAURO. Thank you very much.

Thank you, Mr. Chairman.

Mr. HUNTER. Certainly. Tony, do you have a response?

Mr. BATTISTA. Yes. Thank you, Mr. Chairman.

Ms DeLauro, I have to voice some strong disagreement here relative to growth and mission, et cetera. Mission is a very subjective thing. I can recall when the Marine amphibious unit was landing in Lebanon, we had a call from someone in the fleet who said, I am neither ready nor am I sustainable to support that mission. We asked the folks in the Pentagon about that and that was explored by Congressman Dan Daniel.

As a result of his dissatisfaction with the answer he got, we went to Lebanon and we found there was a vast difference between what the folks in the eastern Med thought their mission was and what the Pentagon thought their mission was. I remember one admiral responding to Congressman Daniel, "If the Russians challenge us, I would get the hell out of here real fast," and he used a few expletive deleteds, he was so upset.

The mission, as described by the Pentagon maybe, was to support the landing of the Marine amphibious unit unopposed. So accordingly, the fact that they had all of these weapons systems down did not mean too much. I mean, in Congress, if they took that at face value, we would have thought they could have supported the mission.

Let me get to the submarine issue and relative to the question you asked about growth. First of all, we have learned a lot in the last 20 years about what the Russians can do. The Secretary said, question their signal processing ability. I do not. What we learned from the Russian experiments is that they know how to use synthetic aperture radar to find internal waves on the surface of the ocean generated by submarines that are transiting below the surface of the ocean. They know how to do that, and in an executive session I can tell you how good their processing is. This is all documented, by the way.

Second, with regard to Soviet sensors, keeping this unclassified, we were surprised in the past to find that the Soviets had sensors on some of their ships, submarines, that would enable them to track Western submarines, and I will say Western, not United States. We were surprised that they were very, very advanced in terms of what they could use to find these submarines.

So I disagree that we do not know much about their sensors. We can extrapolate from the past and tell you that they are pretty good, and I am going to say not as good as we are, but they are good. They are good enough.

Now, let me say with regard to stealth, I think Admiral Lopez gave you a very honest answer, that this is going to be a stealthy

submarine in one area, acoustics. But across the spectrum, it is not going to be stealthy.

Now, I would ask you, would you fund a B–2 that was immune to radar but detectable by electro-optical systems? You would say, "Hey, wait a minute now. That is the weak link. Let us fix that." Conversely, you would not fund a B–2 that was going to be immune to electro-optics but vulnerable to radar. So you would want stealth across the spectrum, and that is what we have in that aircraft.

When you look at submarines, you have to ask, are these acoustically and nonacoustically quiet, because quieting means everything. It means acoustics, it means hydrodynamic, it means chemical, it means radio-chemical. You can find submarines by disruption of plankton in the oceans today. And, by the way, the Russians did that, 7 years from open literature to sensor.

So what I am suggesting to you is that you cannot take a new attack submarine or a *Seawolf* and make it non-acoustically quiet to the level that the Russians have made their submarines non-acoustically quiet. It is like taking an F–16 and saying, make it a F–117.

So what I am saying is this is a very good boat, the new attack submarine. We ought to build it, but we need something else if we are going to maintain quieting across the whole spectrum.

Ms. DELAURO. Mr. Battista, I do not get a sense from anything that I have heard that there is not a desire to have the best submarine that we can have. No one has suggested otherwise. At the moment, we appear to have what we believe we need. We want to try to make it better, dealing with what the new technology is.

The fact of the matter is that we are dealing also within budget constraints and we have to take a look at that, which is what appears as the practicality of what we are talking about. And, as I said before, I think what I have heard, that there is the sensitivity, more than the sensitivity, it is the pragmatic quality here of understanding that we will deal with additional capability as we go along and we have a product that can handle doing that and will continue to do that, and also based on what our level of threat is, as well.

Given what Mr. Dellums talked about before, there has been, I think we could agree, there has been in the past—I do not know how to quite say this, maybe not an over-exaggeration, but at least some exaggeration of a capability of the Soviet Union when we watched a nation implode, if you will, and also we have seen in lots of different reports that there was a lot of misconceptions as to what the Soviet Union had.

I am not saying that this is an area that they have not perfected some technology, but I do not get any sense from either any member of the committee, from any member of the panel, and the prior panels that we are not looking to build the very best piece of equipment that we have. We have the technology. We have the capability. We are trying to do that within the context of two shipyards, a virtual design capacity which allows us to move forward and to have what we need to meet what the threat is currently and assess it as we go along.

I do not see anyone who would challenge that here. What I do find here is that there is a belief that we cannot spend $4, $8, $12, $16 billion to look at, and I am not going to say it is four different kinds of submarines, because I know that that is not what is being suggested here, but that we have the luxury to allow this to go in whatever direction it may take and then pull back and figure out what is best.

The other thing is that we need to have another submarine by the year 2002. We do not have all the time in the world to do this and we do not have all the money in the world to get it accomplished, and I think that that is what essentially we are all trying to say in addressing this problem.

Mr. HUNTER. I thank the gentlelady.

Mr. Battista.

Mr. BATTISTA. Again, I am not trying to be contentious, but if you go into executive session, I think you can get a very different threat briefing. That is first.

Second, stealth is the one area that you have to preserve in the submarine community in order to be effective, so——

Mr. DOUGLASS. Mr. Chairman, can I say something here, too?

Mr. HUNTER. Why do you not let Tony finish and then we will let you say it.

Mr. DOUGLASS. Using the rules of yielding, can I——

Mr. HUNTER. Mr. Secretary, this is a free-flowing conversation. We are going to let you speak your piece.

Go ahead, Tony.

Mr. BATTISTA. What I am saying, Ms. DeLauro, is if you really have to maintain stealth and you are only three-quarters or half of the way there, then you have to ask yourself, did we really do our best?

Now, you have focused on cost. I am very sensitive to cost. I do not believe the numbers that suggest that you have to spend that much money to get this technology. For example, I think you were out of the room when I was talking about gas injection into the boundary layer to reduce vulnerability, to enhance quieting, hydrodynamic quieting, and to actually gain speed through drag reduction. These folks do not even understand that, and I do not say that in a derogatory way. We have not paid attention, and Congress has been telling them to do that for nearly two decades now.

So when it comes to cost, I am suggesting to you that you can meet your cost within the budget, within the framework of the budget. And by the way, I think I was the first to redefine our strategic triad. It is now national defense, the solution to our domestic problems, and the size of the Federal deficit, which translates into maintaining a good Medicare/Medicaid program, et cetera. So this is the triad we are facing today. It is no longer bombers, missiles, and submarines. It is an interdependent relationship among our domestic problems and our military, national security requirements. I think you can get there from here. I think we can do better.

So I am not trying to bankrupt the Federal budget, and I do not work for anybody in submarines. I have no interest in this beyond the same interest that the Secretary does and Admiral Lopez. Are we doing the best we can? I suggest to you that our yards can be

doing better. All I am saying is, keep the current program going and give the yards the opportunity to do better, and I think you can do it without bankrupting the budget.

Mr. HUNTER. John.

Mr. DOUGLASS. Mr. Chairman, I want to thank the Congresswoman for her summary. I tend to agree with it absolutely. You have captured our dilemma very well.

But there is one little thing here that I have to put onto the record, is Tony keeps talking about going into executive session. If you are just a young American sitting out there in the crowd, what you draw from that is Tony knows some stuff we do not know or we are hiding something or whatever.

We do not concede at all Tony's points that if we went into a classified session that he would be right and we would be wrong. There are plenty of things that we could add to the record in a classified session that would carry the balance that you seek, ma'am, clearly forward at any level of classification.

I must insist that it go into the record that there is no "eureka" in the classified environment that makes Tony's argument more cogent than ours. We can hold our own in this debate in an unclassified session, in a classified session, in a codeword session, however it has to go.

Tony talked about the B–1 and the B–2 and used some examples. I was a young officer on that program, Tony knows doggone well. I used to come over here during the markups and we would go up to H–407 and we would carry on the debate up there because it was sensitive technology. We could do that on this program if you really want to.

The point that is to be made here is that the balance that the U.S. Navy is seeking to make here, the argument carries, in our belief, at whatever level of classification you would wish to discuss this problem with. So I do not want all the young people that are sitting behind me back there or the reporters or whatever to go away from this hearing thinking that if you just go to a classified session, that the U.S. Navy is way off track. I do not accept that.

Mr. BATTISTA. Just 2 seconds to respond to that. One, I am prepared to not only go to executive session—it is not to deprive the people of the information, it is because I am bound by national security regulations, just as everybody else is—but I am prepared to give you the reports, I am prepared to give you the dates, and I am prepared to, as I said earlier, give you the track record of the Navy on the Alpha, on the Oscar, on the speeds, on the depths.

So what I think I can tell you, Mr. Chairman, in an executive session or even in an open session if they want to give me the permission, is the data supports everything I told you today, and as I said earlier, do not take what I told you at face value. Make me prove it.

Mr. BATEMAN. Mr. Chairman.

Mr. HUNTER. I thank the gentlemen for their interchange, and Ms. DeLauro, thank you for your question. Are you finished?

Ms. DELAURO. Yes.

Mr. HUNTER. Did the distinguished ranking member have a point to make? Ron, are you okay?

Mr. DELLUMS. I think you broke the record for a marathon hearing. [Laughter.]

Mr. HUNTER. This is an important one.

Mr. DOUGLASS. Mr. Chairman, we are getting hungry out here. We did not get to go vote or go to the bathroom or anything.

Mr. HUNTER. I understand. Let me just say, we have just a couple of members left and we will accommodate those members and we will wrap up. This is a very important area.

Let me just say one thing, Mr. Douglass. You talked about the sense of balance, and so did you, Admiral Lopez, but there was no indication when we put this conference together in December and January when we came back that you were going to want to scoot an LPD back into the mix that would obviously compete for dollars, which you did in accelerating that in 1999, after we pulled the LPD and LHD forward. So with respect to having the dollars available, I found it a little bit difficult to accept that we are broke, we cannot do more on submarines, and that is because we just plussed up an extra LHD.

Let me go to the other fine gentleman from Virginia, Mr. Sisisky, for any comments he wants to make, and then we will go to Mr. Kennedy for his comments, and Mr. Longley, let me get a sense from Mr. Longley, who has sat through the entire hearing today and typed vigorously into his laptop. Are you going to have a series of questions?

Mr. LONGLEY. I do not think so, Mr. Chairman.

Mr. HUNTER. I just wanted to ask.

Mr. SISISKY. I do not have any series of questions either, but——

Mr. HUNTER. Mr. Sisisky.

Mr. SISISKY. A lot has gone by. I have some technical questions and I will submit them for the record to save time, Mr. Chairman, if you will go through what we have not answered.

I have known Tony Battista for a good number of years. He brought up the fact—I used to call him our own CIA. He would bring in pictures the CIA did not even have, so he has not changed any. He says he is not contentious, but he is. He loves it. I congratulate you for your input in here. You said Mr. Bateman is a nice fellow, and he is. He is wonderful. He is a good friend of mine. I am not so nice sometimes.

I have really one basic question. I have asked the Chief of Naval Operations, I have asked the Secretary of the Navy, I have asked you, Mr. Douglass. Where is the money in the 1997—you said it is coming. When is it coming for Newport News to start? Everybody tells me the money is coming, but where is it from and——

Mr. DOUGLASS. Sir, the 1997 money cannot come until, of course, it is authorized and appropriated by the Congress.

Mr. SISISKY. Yes, sir, but it was not put into the budget, am I correct?

Mr. DOUGLASS. Sir, there was money in the budget for the design transfer, yes, sir. What is not in the budget and what was placed above the line is the advance procurement money for the 1999 boat. That was placed above the line in accordance with the direction contained in the fiscal year 1996 defense authorization conference report, the special clause which allowed that money to be placed above the line.

But in order to keep the design transfer going, we have placed money within the budget, and sir, that is a symbol of our commitment to this competition.

Mr. SISISKY. You know how critical 1999 is.

Mr. DOUGLASS. I beg your pardon, sir?

Mr. SISISKY. Nineteen-ninety-nine is very critical——

Mr. DOUGLASS. Yes, sir.

Mr. SISISKY [continuing]. And I am afraid, and I am sure Mr. Bateman is, too, that that could slip another year and that is extremely critical. That is why I bring up the subject.

Mr. DOUGLASS. Yes, sir.

Mr. SISISKY. The other subject that I want to bring up, the modernization, this is nothing new. They have upgraded the 688, from what Ms. DeLauro said, that you would not even recognize it. I mean, you recognize it from the outside but the inside is different. You can take the Nimitz class carriers. They look alike on the outside, but the inside, they have been upgraded. So this is nothing new, that we do not upgrade weapons systems and other things.

But the other thing, you said it and you said it a couple of times. I have been here long enough now to know that you are sending a signal out, I think, and that is that you are under the cap on the Seawolf by a very slim margin. Are you trying to deliver a message that this thing is going to—because if it goes up anymore, I mean, it has been up and everybody agreed they could come in at the price and the cap. Are you trying to signal that that may not be true?

Mr. DOUGLASS. No, sir. I am trying to portray as accurately as I can, sir, because I have, just like Tony, he and I have been involved in this. When I was a young lieutenant colonel, I used to sit back there in the back and hand up the papers to Dick Delaur. Congressmen Dellums and Bateman and others will remember those, probably you, too, sir. You do not focus on the guys in the back deck, but I was back there and I know what these cost caps mean.

We have had cost caps in other systems, and I am not trying to embarrass anybody in any other service or anything, that have not really worked out and what has been delivered to the American taxpayers has been something that did not meet the military requirements because of these cost caps.

I am determined that we will deliver to the U.S. Navy a *Seawolf* submarine which fully meets the requirements of the U.S. Navy under that cost cap. In other words, I am not taking anything out to stay under the cap. But I need to tell you, sir, and I am trying to be honest and explicit, no signals, no nothing, plain old dumb engineer talk that we are close. It is close. I am sweating it. That is all I can tell you. What you see is what you get, Mr. Sisisky. We are close.

Mr. SISISKY. When we set the cap, and everybody agreed to the cap there, and that is how you got, I think, the 22 and the 23, because we had the cap, but all of a sudden I just get that feeling. You are being very fair. When I said "send a signal," I did not mean that was deceptive in any way, knowing how this place works, I think.

Mr. DOUGLASS. Yes, sir. If we go over 2 months or 3 months or 4 months from now, I do not want you all to say to me, Mr. Douglass, you were here a month ago or so and you did not tell us anything about this. We are under, and, by golly, I am doing everything—spending a lot of my time, probably more time than I should, on submarines, and one of the aspects of it is keeping that *Seawolf* Program under the cap.

Let me tell you, I am not the only one over there. Secretary Dalton, I have an appointment to—he is coming back from travel and his aide and I talked about this very subject today. He is watching that thing like a hawk. When I came in, he gave me my marching orders. John, you get out there and look to see how close we are. We are trying to stay under.

Mr. SISISKY. John, we can arrange the question, really, that you have to watch those things. I watched the C–17 from a disastrous program, and when Secretary Deutch got into it and we started watching it, you saw what happened. We have a very successful aircraft now.

Mr. DOUGLASS. Yes, sir.

Mr. SISISKY. The price is coming down. That is the reason I raised the question, not a criticism.

Mr. DOUGLASS. Yes, sir.

Mr. HUNTER. I thank the very distinguished gentleman from Virginia.

The gentleman from Rhode Island, Mr. Kennedy.

Mr. KENNEDY. Thank you, Mr. Chairman.

I do not want to add a lot to what has already been said because I think we have been here quite a while and I know that a lot of us have a great deal of interest in this. If we were really to go on with it, we could be here even a lot longer than we have been. I appreciate the complexity of what is being talked about here and I think that what makes it difficult for this back and forth is that it is so complex that each of us could be talking about it with different colors to our argument and not get anywhere but enjoy a good back and forth, for whatever it is worth.

I think what we are trying to deal with here is how we are going to meet the Navy's needs so far as procuring a submarine that is technologically on the cutting edge and doing so in a fiscal environment that demands that we keep within certain budgets.

One of the questions that I have had all along is how we are going to be able to maintain, as the bottom-up review had and as the Secretary and the CNO have already stated, that we have the industrial base that we currently enjoy with the two nuclear-capable shipyards. I think that the idea behind this is how we maintain that and also get the best submarine.

The notion that we are going to spread out the learning curve for both shipyards, such that we are spending a lot of money so that both can come up to speed and be competitive, is one that I think we have to grapple with, because I think it really begs the question you are talking about, a very complex piece of machinery like these submarines. It is not apples to apples here.

When you try to have a competing out, what kind of basis is that competition going to be based upon? If you have different shipyards with different designs, inherent in the design are going to be—one

shipyard has a design for a certain class. How are you going to know, unless you have a duplicate ship being made at the other shipyard, how it is going to be——

Mr. DOUGLASS. Apples to apples, oranges to oranges, yes.

Mr. KENNEDY. Apples to apples, oranges to oranges. The whole idea here is how we are going to be moving the technology to the cutting edge so that it is never apples to apples, we are always trying to add more.

I think the notion that we are going to be taking something so technically advanced as these submarines with the whole array of complementary weapons systems and the whole array of ways to measure the silence capability of these various boats is, to me, something that we cannot try to duplicate entirely in each shipyard, so we have to come to grips with that.

I think your report points out that you have come to grips with it and that you feel that the way we are—that the plan that was initially proposed by the Navy is the one we should sort of go forward with, because——

Mr. HUNTER. Let me butt in for just a minute here. The gentleman is making an excellent point, but everybody else has broken for the April recess and the ranking member—let me say to you, Mr. Dellums, as the ranking member of the full committee, you have hung in here on every oversight hearing we have had, going sometimes late into the afternoon. We appreciate your sense of duty. But we need to wrap up real quickly, and I do not want to wrap up with Mr. Dellums leaving the room because it will break the record, so you are the last man.

Mr. KENNEDY. I will wrap up. All I am saying is that in compliance with the section 131——

Mr. HUNTER. This is like Cal Ripken, missing the last game. I do not want to see this happen.

Mr. KENNEDY [continuing]. Of the Defense Authorization Act, Mr. Chairman, respectfully, I think that the Secretary did come back to us. He said that the competition plan put forth in last year's program, if you look at the out years, does not allow for us to maintain both shipyards because of the deficit in that plan to meet the needs of keeping one shipyard going. I think that was addressed and we can dialog further as to how to fill that gap so that we are not putting a shipyard at a point where it cannot compete really effectively, and that is something we can debate, I am sure, ad nauseam later on.

Mr. HUNTER. Let me just assure the gentleman that keeping the competition element and robust competition, and that means the health of both yards was foremost in our minds in putting this plan together, so if that is the gentleman's statement, if you will, we will wrap up unless our panelists feel like they are compelled to respond.

Mr. DOUGLASS. Just to say one thing——

Mr. HUNTER. Go right ahead, Mr. Douglass.

Mr. DOUGLASS. Congressman Kennedy is absolutely right and I would point out to the committee that that is a particularly difficult problem for Electric Boat because that is all they build, is submarines. The other yard has a lot of Navy work to take up the

slack, so we do have to address that one and we appreciate you agreeing with us on that, sir.

Mr. HUNTER. We will work on that. Maybe we can plug that hole with some LPD funding, right? [Laughter.]

[The prepared statement of Mr. Douglass, Vice Admiral Lopez, and Major General Oster follow:]

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HOUSE NATIONAL SECURITY COMMITTEE
MILITARY PROCUREMENT AND RESEARCH
AND DEVELOPMENT SUBCOMMITTEES

STATEMENT OF

THE HONORABLE JOHN W. DOUGLASS
ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)

AND

VICE ADMIRAL T. JOSEPH LOPEZ, USN
DEPUTY CHIEF OF NAVAL OPERATIONS
RESOURCES, WARFARE REQUIREMENTS AND ASSESSMENTS

AND

MAJOR GENERAL JEFFREY W. OSTER, USMC
DEPUTY CHIEF OF STAFF
PROGRAMS & RESOURCES

BEFORE THE

SUBCOMMITTEES ON MILITARY PROCUREMENT
AND RESEARCH AND DEVELOPMENT

OF THE

HOUSE NATIONAL SECURITY COMMITTEE

ON

FY 1997 NAVY/MARINE CORPS ACQUISITION

MARCH 29, 1996

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE NATIONAL SECURITY COMMITTEE
MILITARY PROCUREMENT AND RESEARCH
AND DEVELOPMENT SUBCOMMITTEES



HONORABLE JOHN W. DOUGLASS
ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)

The Honorable John W. Douglass was sworn in as the Assistant Secretary of the Navy for Research, Development and Acquisition on November 1, 1995. As the Assistant Secretary of the Navy for Research, Development and Acquisition, Mr. Douglass is the Department's Acquisition Executive responsible for all research, development, and procurement of defense systems satisfying the requirements of the Navy and Marine Corps. He is also responsible for all acquisition policy and procedures within the Department.

Mr. Douglass has extensive acquisition experience within the Congress, Department of Defense, and Executive Branch. His most recent assignment was with the Senate Armed Services Committee where he was Foreign Policy Advisor and Science and Technology Advisor to Senator Sam Nunn. He also served as the lead minority staff member, Subcommittee on Defense Acquisition and Technology, responsible for over $15 billion in Technology Base Programs. He was the Committee's minority coordinator for all codeword programs, and minority staff member for Defense Conversion and Technology Reinvestment Programs.

At the Department of Defense, Mr. Douglass served as the Deputy, U.S. Military Representative to NATO; the Director of Plans and Policy and the Director of Science and Technology, Office of the Secretary of the Air Force.

Mr. Douglass also served as the Special Assistant to the Under Secretary of Defense for Acquisition. He managed all Codeword Acquisition Programs and the codeword budget process for the Secretary. He was also the Secretary's personal speechwriter and managed the Secretary's liaison with Congress.

Within the Executive Branch, Mr. Douglass served as the Director of National Security Programs for the White House. As Director, he was responsible for formulating National Security Policy on a broad range of National security issues, and was former President Reagan's personal representative to the Packard Commission on Acquisition Reform.

Mr. Douglass completed 28 years of Air Force service as a Brigadier General. He is a nationally recognized expert in systems acquisition with extensive experience as a contracting officer, engineering officer, test and evaluation officer, program control officer, and research director.

Mr. Douglass was born May 2, 1941, in Miami, Florida. He received his undergraduate degree from the University of Florida and advanced degrees from Texas Tech University and Fairleigh Dickenson University, respectively. He has also done postgraduate work at the Cornell University Center for International Studies, where he was an Air Force Research Fellow with the Peace Studies Program.

Mr. Douglass has three children, William Mayer, Laura Noel, and Alexander Augustine. He and his wife, Susan, live in Alexandria, Virginia.

Revised 03/05/96

Vice Admiral T. Joseph Lopez

Deputy Chief of Naval Operations
(Resources, Warfare Requirements and Assessments)



Vice Admiral Lopez was born in Powellton, West Virginia January 20, 1940. He entered the U.S. Navy in September 1959 and was commissioned in December 1964. His education includes a Bachelor of Arts (cum laude) in International Relations and a master of Science in Personnel Management. After commissioning, he served aboard USS EUGENE A. GREENE (DD 711) and USS WALLACE L. LIND (DD 703) and attended the U.S. Naval Destroyer School. In 1969 he was assigned as Commanding Officer of River Division ONE FIVE THREE in Vietnam, where one of his tasks was commanding a joint U.S. and Vietnamese naval assault into Cambodia in May 1970.

Vice Admiral Lopez completed his education at the Naval Postgraduate School from August 1970 through June 1973, was ordered to the Armed Forces Staff College, and began a two year tour as Flag Secretary for Commander Cruiser Destroyer Group EIGHT in 1974. In October 1977, he was reassigned as Executive Officer of USS TRUETT (FF 1095) followed by duty at the Naval Military Personnel Command as the Cruiser-Destroyer Atlantic Placement Officer in March 1979. Vice Admiral Lopez was subsequently assigned in June 1980 as the Special Assistant for Navy Personnel to the Assistant Secretary of the Navy (Manpower, Reserve Affairs, and Logistics). He assumed command of USS STUMP (DD 978) in September 1982, completing a Persian Gulf deployment in 1983. He was assigned in November 1984 as Special Assistant to the Chief of Naval Personnel.

Vice Admiral Lopez commanded Destroyer Squadron THIRTY-TWO from February 1987 through March 1988. In 1988 he served as Executive Assistant to the Chief of Naval Personnel/Deputy Chief of Naval Operations and in August 1988 was assigned as the Executive Assistant to the Vice Chief of Naval Operations. Vice Admiral Lopez served from July 1989 through July 1990 as Deputy Director for Current Operations in the Office of the Joint Chiefs of Staff and as the Senior Military Assistant to the Secretary of Defense from August 1990 to June 1992. He was promoted to Vice Admiral in July 1992. Vice Admiral Lopez commanded the United States Sixth Fleet and NATO's Striking and Support Forces Southern Europe from July 1992 to December 1993. He assumed duties as Deputy Chief of Naval Operations (Resources, Warfare Requirements & Assessments) in December 1993.

Vice Admiral Lopez wears the Defense Distinguished Service Medal, the Navy Distinguished Service Medal, three Legions of Merit, the Bronze Star (with Combat "V"), two Meritorious Service Medals, two Navy Commendations Medals (with Combat "V"), Navy Achievement Medal (with Combat "V"), Combat Action Ribbon, Presidential Unit Citation and numerous other unit and campaign awards.

Vice Admiral Lopez is married to the former Vivian Hall of Longacre, West Virginia. They have a son, Tom, and a daughter, Dominique.

United States Marine Corps

Major General
Jeffrey W. Oster
Deputy Chief of Staff



Major General Jeffrey W. Oster is the Deputy Chief of Staff for Programs and Resources, Headquarters Marine Corps, Washington, D.C.

General Oster was born November 11, 1941 in Milwaukee, Wisconsin. After graduation with a B.S. degree in geology from the University of Wisconsin in 1963, he was commissioned a second lieutenant through the Platoon Leaders Class Program. His professional military education includes The Basic School (1964) and Amphibious Warfare School (1971) both at Quantico, Va., and the National War College (1982), Washington, D.C. He also holds an MBA degree from the University of Wisconsin (1976).

Designated an infantry officer, General Oster has served at every operational level in the Fleet Marine Force. Initially he was assigned as a platoon commander with the 2d Battalion, 3d Marines which deployed to the Republic of Vietnam in April 1965. Subsequent duties include: assignments as a Shore Party Team Commander, Battalion Landing Team 3/8 (1966); Executive Officer, 1st Battalion, 7th Marines (1971); S-3 of the 2d Battalion, 7th Marines (1972); Regimental Executive Officer, 4th Marines, 3d Marine Division and concurrently as Assistant Camp Commander, Camp Schwab, Okinawa (1981); Regimental Commander of the 7th Marines, 1st Marine Division (1987); and as the Assistant Division Commander, 3d Marine Division/Commanding General, 9th Marine Expeditionary Brigade (1989).

Other command tours include assignments as the Commanding Officer, Marine Detachment, USS Enterprise (1968) and as the Commander, Defense Electronics Supply Center, Defense Logistics Agency, Dayton, Ohio (1990).

General Oster has held the following principal staff assignments: Marine Corps White House Liaison Officer, Office of the Secretary of the Navy (1967); Marine Officer Instructor, NROTC Unit, University of Wisconsin (1972); Manpower Programs Officer, Manpower Plans and Policy Division, Headquarters Marine Corps, (1976); Program Analyst and Program Review Coordinator, Office of the Assistant Secretary of Defense (Program Analysis & Evaluation) (1979); Secretary of the General Staff, Office of the Chief of Staff, Headquarters Marine Corps (1983); Assistant Chief of Staff G-3, 1st Marine Division (1986); and Assistant Deputy Chief of Staff for Manpower and Reserve Affairs (Reserve Affairs), Headquarters Marine Corps (1992).

He assumed his current assignment on July 1, 1993.

General Oster's personal decorations include: the Defense Superior Service Medal with Oak Leaf Cluster; Legion of

Merit; the Meritorious Service Medal; Navy Achievement Medal; and the Combat Action Ribbon.

(Revised Sept. 15, 1993 HQMC)

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Mr. Chairman, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss the Department of the Navy's fiscal year 1997 RDT&E and Procurement budget request.

The events of the past year continue to emphasize the Navy's and Marine Corps' key role in national security. Forward deployed Naval forces were involved in over 15 major operations during 1995-- operations that required immediate and decisive military responses from forward deployed forces in support of fundamental national interests. From the USS THEODORE ROOSEVELT (CVN 71), and USS AMERICA (CV 66) Battle Groups quick reaction Tomahawk and air strikes against Bosnian-Serb aggression to the daring rescue of Captain Scott O'Grady by the 24th Marine Expeditionary Unit (Special Operations Capable), Naval forces continue to fulfill a vital national security role for which they are uniquely suited. Naval Carrier Battle Groups near Taiwan are the latest examples of how forward deployed, flexible, and mobile naval forces underscore our nations resolve and global interests.

However, with diminishing resources and steady or increasing operational demands, the Department's greatest challenge is to strike the right balance between meeting today's needs and those of the future. As the Department sheds its infrastructure in the effort to "rightsize", actions during the period fiscal years 1994 through 1996 reflected priorities for funding near-term readiness while the relatively high procurement rates of the 1980's continued to deliver new and very capable systems. In fiscal year 1997 and beyond, the trends reflect the beginning of recapitalization of the Naval forces for the future.

As we begin again to invest in our platforms and weapon systems, the Department continues our strong commitment to reform the business side of acquisition. Two excellent examples of our success are the F/A-18E/F, winner of the Department of Defense Acquisition Excellence Award, and the SQQ-89 sonar suite, which

we have reduced from $30 million procurement cost to $5 million by introducing manufacturing competition, reform in military specifications and standards, and commercial-off-the-shelf equipment.

The following provides more detailed information of our more significant RDT&E, Aviation, Shipbuilding, Expeditionary Forces, Mine and Undersea Warfare, C4I, and acquisition reform programs. These programs reflect the priorities and requirements established by the warfighters-- the theater Commanders-in-Chief.

RESEARCH, DEVELOPMENT TEST AND EVALUATION (RDT&E)

Our Research, Development, Test & Evaluation (RDT&E) programs are directly responsible for our status as the most powerful and advanced Navy in the world. Some of the most significant RDT&E projects include the programs that will ensure our military superpower status well into the 21st Century. They include: the V-22 Tiltrotor; F/A-18E/F Super Hornet; Joint Strike Fighter; New Attack Submarine; Arsenal Ship; Tomahawk Baseline Improvement Program (TBIP); Cooperative Engagement Capability (CEC); and Joint Direct Attack Munitions (JDAM)/Joint Stand-Off Weapon (JSOW).

The Department of the Navy's RDT&E budget request for fiscal year 1997 is $7.3 billion, about $1.0 billion less than fiscal year 1996 due largely to the maturity of programs such as the F/A-18E/F and the V-22. The fiscal year 1997 budget request is a continuation of our policy of maintaining a relatively stable RDT&E program.

The Department continues to place major emphasis on Science and Technology-- the front end of the research, development, and acquisition process. A continuing flow of new technology is the cornerstone in protecting our future technological superiority and in support of on-going fleet modernization efforts. The goal

of science and technology is to provide the Navy with more affordable systems, improve current systems through appropriate technology insertion, and offer the potential for revolutionary technological "breakthroughs".

The Department of the Navy budget request for the integrated Science and Technology program is $1.3 billion which is divided between: Basic Research programs-- for basic scientific discoveries; Applied Research programs-- for development of emerging technologies; and Advanced Technology Development (ATD) programs-- for developing specific technologies into Naval programs. Current ATD initiatives include demonstration of a new supersonic tactical missile, an advanced tactical undersea acoustic communication system, and a new high capacity projectile which will increase payload and extend the range of our five-inch Naval Surface Fire Support gun being developed for the Extended Range Guided Munition (ERGM) program.

It often takes 15 to 20 years of investment, some of it high risk, across a broad spectrum of activities to transition fundamental knowledge gained from basic research into a component of a modern weapon system. Perhaps only 10% of the investment will ultimately result in major fielded advances, but when they occur, these breakthroughs pay warfighting dividends far in excess of the total investment. Examples of successful Science and Technology transitions into Naval systems include: Over-the-Horizon-Radar; Towed Arrays; Environmental Acoustics; Inverse Synthetic Aperture Radar (ISAR); and the Global Positioning System (GPS). Examples of emerging technologies that will have significant war fighting impact include: High Temperature Superconductivity; Neural Networks; Diamond Thin Films/Coatings; Smart Structures; and Blood Substitutes.

Our Manufacturing Technology (MANTECH) program is an important element of our acquisition strategy to improve productivity of the industrial base and make our weapon systems

and platforms more affordable. The principal goal of the Department of the Navy MANTECH programs is to reduce acquisition costs by developing and utilizing manufacturing technology, cost containment technology, and life-cycle support (repair) technology. In order to make best use of this program, we have established a MANTECH Steering Committee to tie MANTECH program initiatives to specific acquisition requirements applicable to the Navy's needs.

NAVAL AVIATION PROGRAMS

The Department of the Navy operates ten active USN carrier air wings and three active Marine Corps (USMC) airwings. The fiscal year 1997 Aircraft Procurement budget request of $5.9 billion totals 40 aircraft including 10 AV-8B Harriers (remanufactured aircraft), 12 F/A-18E/F Super Hornets, 4 V-22 Ospreys, 2 E-2C Hawkeyes, and 12 T-45 Goshawks. These 40 aircraft represent the smallest aircraft acquisition total since 1938, but are essential to our efforts to recapitalize our forces.

Fiscal year 1997 marks a critical juncture in Naval aviation with the initial procurement of two key weapon systems, the F/A-18E/F and V-22. Each plays a central and dominant role in the Navy and Marine Corps team's ability to project power from our forward deployed Carrier and Amphibious Ready Groups. The development programs for each of these aircraft are on track.

F/A-18E/F SUPER HORNET

The F/A-18E/F is the Navy's number one aviation program and critical to the future of our carrier airwings. The FA-18E/F modernizes the Navy's tactical aviation through the affordable and low risk evolution of the F/A-18C/D. The fiscal year 1997 procurement request is $2.15 billion. The procurement of these first Low Rate Initial Production (LRIP) aircraft will begin the

orderly transition of the F-14 and F/A-18A/B/C/D inventory to this improved strike fighter aircraft. Compared to the F-14 and earlier model F-18s, the Super Hornet will immediately and significantly increase our capability in every mission area. It provides greater range, greater payload flexibility, increased capability to return to the carrier with unexpended ordnance, and a new aerial refueling platform compatibility integral to the carrier airwing. It also incorporates enhanced survivability features, and provides growth potential for future technology. This aircraft will make up the majority of strike fighter assets for decades, and with the Joint Strike Fighter (JSF) aircraft, continue to provide our nation with credible power projection capability from our forward deployed carrier battle groups.

The Engineering and Manufacturing Development program is on track, meeting all performance criteria, and within the Congressionally mandated $4.88 billion cost cap. The first Super Hornet flight was completed in November 1995 -- 29 days ahead of schedule. The first two Super Hornets arrived at NAS Patuxent River, Maryland, in February 1996 to begin flight test operations.

Total planned procurement for the F/A-18E/F is currently 1,000 aircraft. A Navy Program Review will be conducted this spring to approve long-lead procurement for the F/A-18E/F.

V-22 OSPREY

The V-22 Osprey is designed to replace the Marine Corps CH-46E and CH-53D as well as the Special Operations Command TH-53A, MH-53J, MH-47D, MH-60G, MC-130E, HC-130, HC-130E, and HH-60H. The MV-22 is the Department's highest acquisition priority for Marine Corps aviation and critical to the implementation of our *Operational Maneuver from the Sea* concept. The total fiscal year 1997 budget request is $1.13 billion, with $558.7 million earmarked for procurement of four MV-22's, and

$576.8 million for continued RDT&E.

The acquisition of this medium lift tiltrotor, vertical/short takeoff and landing (VSTOL) aircraft represents a revolutionary leap in our ability to project forces from over the horizon toward inland objectives. The MV-22 will fly significantly farther and faster with a greater payload than our aging fleet of medium lift CH-46 helicopters. It's ability to carry 24 combat-loaded Marines at a cruising speed of 240 knots is key to the execution of maneuver warfare. This combat multiplier nearly triples the present day battlespace and will give commanders the tactical flexibility to respond, adapt to, and defeat a wide range of threats. The MV-22 will give us the ability to maintain battlefield dominance well into the 21st Century.

Low rate initial production will begin in fiscal year 1997 with an IOC of 2001. Due to a $1.0 billion per year funding cap (in fiscal year 1994 dollars), the current acquisition profile for the MV-22 will complete the projected 425 aircraft procurement in 27 years. We hope to be able to accelerate this acquisition in the outyears if possible, and are examining the use of multi-year procurement as a way of accelerating procurement.

JOINT ADVANCED STRIKE TECHNOLOGY (JAST)

The Joint Advanced Strike Technology (JAST) program is the Department of Defense's focal point for defining future strike aircraft and weapon systems for the Navy, Marine Corps, Air Force, and our allies. The overall DoD fiscal year 1997 budget request for the JAST program is $583.7 million; the Department's share is $239.6 million. The program emphasizes affordability -- reducing the life cycle cost of the follow-on Joint Strike Fighter (JSF) development and production programs. The JAST program merges fully validated and affordable joint operational

requirements with demonstrated cost leveraging technologies and flying concept demonstration aircraft to lower risks and costs prior to entering E&MD of the JSF in fiscal year 2001.

JAST is laying the foundation for an affordable family of strike aircraft which meet or exceed individual Services requirements. Initial delivery of operational JSF aircraft variants are anticipated circa 2008. Maintaining the JAST schedule is vital to the future of Navy/Marine Corps aviation. As directed by Congress, DARPA's Advanced Short Takeoff/Vertical Landing concept has been fully integrated into the JAST program.

SHIPBUILDING PROGRAMS

The size of the deployable Battle Force continues to decline to between 330 and 346 ships by fiscal year 2001. The range reflects uncertainty over the number of active surface combatants in service at the end of the FYDP, as described below. The budget request provides for a deployable active Battle Force of 339 ships by the end of fiscal year 1997. This number is below the Bottom-Up-Review goal of 346. However, when counting Reserve ships, the end of fiscal year 1997 ship count becomes 357. The Department continues to review retaining additional frigates to meet requirements pending delivery of new construction ships. There are nine ships joining the Battle Force in fiscal year 1997, seven new constructions and two conversions. The seven new ships entering the fleet include five Aegis ARLEIGH BURKE Class guided missile destroyers (DDG 51), one amphibious assault ship (LHD), and one TRIDENT submarine (SSBN). The conversions are two Auxiliary Ammunition ships (T-AE). The addition of these units will be offset by the decommissioning of 11 ships in fiscal year 1997. The total fiscal year 1997 budget request for Shipbuilding & Conversion (SCN) is $4.9 billion for the acquisition of four ARLEIGH BURKE class guided missile destroyers (DDG-51) and the conversion of two additional ammunition ships (AE). The budget also includes funding for SSN 23, advance procurement funds for

NSSN, and advanced procurement funds for a comprehensive refueling overhaul for CVN-68. In addition, construction of two Large Medium Speed Roll-on Roll-off ships (LMSRs) is funded in the National Defense Sealift Fund. The four new and two conversion ship procurement in the fiscal year 1997 SCN budget request represents the Navy's smallest ship acquisition total since 1933, but is consistent with the minimum procurement required for our recapitalization plan.

ARLEIGH BURKE (DDG-51) DESTROYER

The latest version of the ARLEIGH BURKE (DDG 51) Class destroyer-- the Flight IIA-- enhances this multi-mission surface combatant with state-of-the-art technologies. The Flight IIA ships carry improved air and self defense capabilities, increased capacity for vertical launched Tomahawk land attack cruise missiles, and significantly improved damage control capabilities. To respond to littoral warfighting requirements, we are also incorporating an organic LAMPS MKIII capability and a dual helicopter hangar. The first DDG 51 Flight IIA ship contract was awarded in fiscal year 1994.

The fiscal year 1997 budget request includes $3.4 billion for four DDG 51 Class destroyers. The shipbuilding program in the Future Years Defense Program procures an average of slightly less than three DDG 51's per year. This average will sustain the minimum force levels required by current guidance and will help sustain the surface combatant industrial base.

Four DDG-51 Flight II ships will be delivered in 1996, each within budget and on schedule. The current DDG-51 program totals 57 ships.

SEAWOLF (SSN 21) CLASS SUBMARINE

The SEAWOLF (SSN 21) Class submarine is the most

sophisticated in the world. It is designed to operate autonomously against the world's most capable submarine and surface threats. This impressive capability translates directly into enhanced joint warfighting performance in high threat littoral areas. These multi-mission combatants will set the standard for submarine technology well into the next century. In addition to their robust capabilities to counter enemy submarines and surface shipping, SEAWOLF Class submarines are ideally suited for strike, intelligence and warning, reconnaissance and surveillance, and clandestine missions. These platforms are capable of integrating seamlessly into a Battle Group infrastructure or shifting rapidly into a land battle support role. With an increased number of torpedo tubes and a 30% increase in weapon magazine size over the 688 Class submarines, the SEAWOLF is exceptionally capable of establishing and maintaining battlespace dominance.

The SEAWOLF program totals three submarines and will meet the Congressional cost cap requirement of $7.223 billion. SSN 21 is on track for delivery in the summer of 1996. SSN 22 is greater than 50% complete, and construction of SSN 23 began in December 1995. The fiscal year 1997 budget request of $699 million continues funding for the SSN 23 authorized in fiscal year 1996. The SSN 23 submarine will bridge the gap in submarine construction until the New Attack Submarine begins construction in fiscal year 1998.

NEW ATTACK SUBMARINE

The New Attack Submarine is the Navy's first submarine designed to satisfy a broad spectrum of regional and littoral mission requirements while retaining blue-water undersea battlespace dominance. With added emphasis on expeditionary warfare in the littoral environment, it will surpass the warfighting and peacetime performance of any current or projected threat submarine. New Attack Submarine will have improved

electromagnetic stealth, sophisticated surveillance capabilities, and special warfare enhancements. The ship will carry advance-capability heavy-weight torpedoes; all configurations of land-attack and anti-ship cruise missiles; and mines in the present and planned inventory. New Attack Submarine also incorporates Special Operations Forces capabilities including an integral lock-out/lock-in chamber, and is designed to host swimmer delivery vehicles. The torpedo room design will permit rapid reconfiguration to host special operations personnel and their equipment.

The New Attack Submarine design also focuses on affordability. In addition to the incorporation of leading edge technology, the New Attack Submarine capitalizes on previous submarine advances, incorporates commercial off-the-shelf technologies, introduces simplified, revolutionary design techniques, and utilizes an enhanced modular construction approach that will result in significant cost advantages.

While we continue to refine the cost estimates for the New Attack Submarine program, the overall objective continues to be the delivery of an affordable yet highly capable platform. Our fiscal year 1997 budget requests $296 million for the design and component construction of the first New Attack Submarine in fiscal year 1998. At the direction of Congress, the Future Years Defense Program reflects the procurement of four New Attack Submarines, two to be constructed by Electric Boat in fiscal years 1998 and 2000 and two to be constructed by Newport News Shipbuilding in fiscal years 1999 and 2001. This will ensure the U.S. maintains a viable submarine construction and nuclear component industrial base. As allowed by the fiscal year 1996 Department of Defense Authorization Act, the funding required to finance construction of the fiscal years 1999 and 2001 submarines, which would include $504 million in fiscal year 1997, is not included in the President's Budget request.

21st CENTURY SURFACE COMBATANT SC 21)

The 21st Century Surface Combatant is the capstone and the most critical element of our long-term surface ship modernization program. SC 21 will follow the DDG 51 as the next generation combatant ship and will be designed to meet both open ocean and expeditionary warfare requirements. In January 1995, the Defense Acquisition Board approved our plan to do conceptual studies for surface combatants to begin delivery in 2008. We have started conceptual studies through the most comprehensive and thorough Cost and Operation Effectiveness Analysis (COEA) to date. In conducting the SC-21 analysis study, we will look at a broad range of alternatives, including the possibility of a family of ships, and make extensive use of modeling and simulation to reduce cost while optimizing the final design. The fiscal year 1997 budget request includes $12 million for SC-21 Research and Development.

CVX 78

CVX 78, the development effort of our future carrier, is examining the future requirements for sea-based tactical air platforms and the aircraft carrier that will support those platforms well into the 21st Century. The changing world has demonstrated an increased reliance on the aircraft carrier, which continues to prove itself the perfect instrument for our Nation's political and military needs. These national assets remain highly mobile, flexible, sustainable and ready to provide combat power and rapid crisis response through the world's littoral regions. The fiscal year 1997 budget request contains $7.0 million for this important high priority program.

ARSENAL SHIP

The Arsenal Ship is a joint Navy/DARPA demonstration project. It is conceived as an entirely new concept ship with

massive strike capability with over 500 vertical launch cells and an integrated combat system featuring cooperative engagement capability. Included in the goals of this demonstration project is to keep life-cycle costs very low, with only about 50 crewmembers required to man the ship, in order to minimize manpower costs. The Arsenal Ship is funded jointly by the Navy and DARPA RDT&E.

OTHER SHIP PROGRAMS

The budget continues to provide robust funding for various ship self-defense and battle group defense programs. Ship Self-Defense System Mark I (SSDS MK-1), AN/SLQ-32 advanced capability and initial procurement of the all-up-round Standard Missile Block IIIB variant, incorporating the Missile Homing Improvement Program (MHIP), are requested in fiscal year 1997, as are continued development and procurement of the Cooperative Engagement Capability (CEC) and the Advanced Integrated Electronic Warfare Systems (AIEWS). Improvements to the Rolling Airframe Missile (RAM), the Close In Weapons System (CIWS), and the Evolved Sea Sparrow Missile (ESSM), all integral to SSDS MK-1, continue. Bottom line: our budget continues an all out effort to protect our Sailors and Marines serving aboard ships against missile attack.

The budget request includes procurement of 120 Tomahawk Block III TLAMC/D missiles, and remanufacturing for older Block II missiles into the Block III configuration, as well as research and development funding which will allow Low Rate Initial Production of the Block IV variant of Tomahawk in fiscal year 1998. Additionally, the Tomahawk Baseline Improvement Program (TBIP) will provide a comprehensive baseline upgrade to improve system flexibility and responsiveness.

To ensure strategic deterrence, the annual procurement rate for the TRIDENT II (D-5) missile program continues to be 7

missiles per year across fiscal years 1997-1999 and 12 missiles in fiscal years 2000 and 2001 pending final decisions on START II. The MK-48 ADCAP torpedo performance upgrades began in fiscal year 1995 and continue though the FYDP. The quantity budgeted for procurement over the FYDP has been reduced from 1,386 to 1,110 kits, reflecting decreased requirements as a result of new Non-Nuclear Ordnance Requirements.

EXPEDITIONARY FORCES PROGRAMS

The FY 1997 budget request continues to support the *Operational Maneuver From the Sea* concept with continued modernization and recapitalization of the Marine Corps combat forces. Marine Corps programs are budgeted under the Research and Development and the Procurement Marine Corps appropriations. Marine Corps highest priority programs are the MV-22 tiltrotor aircraft, the Advanced Amphibious Assault Vehicle (AAAV), the Lightweight 155mm (LW155) Howitzer, Medium Tactical Vehicle Remanufacture (MTVR), and joint C4I connectivity. The V-22 begins production in FY 1997 under the Navy Aircraft Procurement budget. The AAAV, currently in the Demonstration and Validation phase and funded under the Research and Development budget, is not expected to begin production until after the turn of the century. Both the MTVR and the LW155 are in Engineering and Manufacturing Development.

ADVANCED AMPHIBIOUS ASSAULT VEHICLE (AAAV)

The Advanced Amphibious Assault Vehicle (AAAV) program is the Marine Corps number one priority ground development program in fiscal year 1997 and is considered the most critical ground combat requirement within the Marine Corps. With its ability to maintain high maneuverability, speed, and firepower during waterborne assaults, the AAAV will dramatically improve our forcible entry capability. For the first time, Marines will be able to directly link maneuver of ships with the landing force

maneuver ashore, fully complementing the MV-22's capabilities and allowing the full potential of *Operational Maneuver From the Sea* to be realized. The Advanced Amphibious Assault Vehicle will carry 18 combat equipped Marines at three times the water speed and increased armored protection than the older Amphibious Assault Vehicle's which will soon be reaching the end of their service life.

The fiscal year 1997 budget request of $40.1 million reflects the first year of additional funding across the development program in response to congressional interest in accelerating the AAAV IOC to fiscal year 2006.

LIGHTWEIGHT 155 HOWITZER (LW155)

The Lightweight 155 Howitzer (LW155) program is second only to the AAAV in terms of weapons development priority for the Marine Corps. The light weight design of the LW155 markedly improves the tactical and strategic mobility of artillery units. The LW155 is a joint Army/Marine Corps acquisition program with the Marine Corps as the lead service. Prototype evaluations have been completed and, based on successes in the operational assessments, the program entered into the Engineering and Manufacturing Development phase in February 1996.

The fiscal year 1997 budget request of $11.2 million supports an IOC for the LW155 in 2002. The Request for Proposal will be issued later this spring. Following a shoot-off later this year, a design will be selected for completing development and testing.

MEDIUM TACTICAL VEHICLE REMANUFACTURE (MTVR)

Funding is included in the fiscal year 1997 budget request for the Medium Tactical Vehicle Remanufacture (MTVR) program. This remanufacturing program extends the life and increases the

capability of our aging 5-ton truck fleet. The MTVR is an exceptional acquisition for the Marine Corps in that it will cost 30-40% less than a new vehicle replacement, yet will be the most capable cargo truck in its class in the world; capable of dramatically improved mobility in off-road conditions and increased capacity to carry ammunition while towing 155mm Howitzers. The MTVR program is managed by the Army and harmonized with the future Army truck remanufacture program. Low Rate Initial Production of the MTVR is planned in FY 1999.

OTHER EXPEDITIONARY FORCES PROGRAMS

The Predator Short Range Assault Weapon (SRAW) program will provide a lightweight (<20 lbs) anti-tank weapon to replace the much less capable AT-4 weapon. This program is a joint effort with the Army for delivery of their Multi-purpose Individual Munition. The Javelin, a joint-service, medium range, anti-tank weapon, which will replace the Dragon system, begins Marine Corps procurement in fiscal year 1997.

In an effort to ensure connectivity and interoperability on the battlefield, several communications and electronics initiatives are under way. These include Manpack Secondary Imagery Dissemination Systems (SIDS) and the Intelligence Analysis System (IAS). SIDS provides the capability to collect, store, display and transmit imagery in near-real time. IAS provides finished intelligence data to the commander in near-real time.

Continuing the efforts to modernize and recapitalize, the Marine Corps will complete procurement of several radio terminals in fiscal year 1997. The Single Channel Ground Air Radio (SINCGARS) will be used as the primary communication meahs of command and control and fire support on the battlefield. The AN/PSC-5 Enhanced Manpack Terminal Radio will provide long range single channel communications either line of sight or via

satellite. An upgrade to the AN/TPS-36 Radar and a modernization to the AN/TPS-59 Radar will commence in fiscal year 1997. These enhancements will provide increased sensitivity, improved reliability, and reduced transportation requirements.

The Marine Corps is also pursuing several night vision equipment initiatives to enhance warrior capability. The Monocular Night Vision Device provides night observation capability to small unit leaders and the Scout Sniper Night Enhancement Device will replace the current sniper scope, allowing for more accurate firing during day and night operations.

MINE AND UNDERSEA WARFARE

MINE WARFARE

The Navy is well on the way toward modernization of our Mine Countermeasures Forces, fulfilling a major deficiency identified during Operation Desert Storm. The Navy's Mine Warfare Plan has been approved by the Chief of Naval Operations and the Commandant of the Marine Corps. It has been endorsed by the Chairman of the Joint Chiefs of Staff and is fully funded in the President's budget request. Top Mine Counter Measure (MCM) programs include the OSPREY Class (MHC-51) coastal mine hunter ships. These ships have a glass reinforced plastic hull for reduced acoustic and magnetic signatures. This is a 12 ship program divided between two shipbuilders: Intermarine USA of Savannah, Georgia (8 ships); and Avondale Industries of New Orleans, Louisiana (4 ships). They are being delivered at a rate of two per year with the final unit scheduled for delivery in December 1998.

Additional MCM programs such as the Shallow Water Assault Breaching System (SABRE) and the Distributed Explosive Technology (DET) are being developed to defeat mines in the difficult surf

zone. Organic mine reconnaissance capabilities are being developed by accelerating the Remote Minehunting System program for surface ships, and developing the Near Term Mine Reconnaissance System and the Long Term Mine Reconnaissance System for submarines utilizing Unmanned Underwater Vehicle (UUV) technology. The Remote Minehunting System will be used in upcoming fleet exercises in order to examine the utility of future systems.

Finally, the 1996 conversion of USS INCHON to a mine countermeasures support ship, with the capability of supporting our airborne and surface Mine Counter Measures (MCM) forces, will give us the only rapid-deployment MCM capability in the world.

ANTISUBMARINE WARFARE

The Department continues to develop Anti-Submarine Warfare (ASW) systems to improve our ability to conduct ASW in the littoral/shallow water regions. The Airborne Low Frequency Sonar (ALFS) system is an improved "dipping sonar" that will significantly enhance our ability to conduct active prosecution of subsurface targets. ALFS development is 95% complete and will be incorporated into the SH-60R Light Airborne Multi-Purpose System (LAMPS) helicopter. The SH-60R LAMPS remanufacture program will also include upgraded acoustic processing to dramatically improve the ASW capability of the LAMPS aircraft.

We continue to upgrade our torpedoes for improved shallow water performance. The MK-46 Service Life Extension Program and MK-50 Block I & II programs will improve the performance of our existing inventory. The Lightweight Hybrid Torpedo, to be introduced in fiscal year 2001, will deliver a significant performance increase in shallow water; it will utilize available components of the MK-46 and MK-50 in addition to extensive use of Commercial-off-the-Shelf electronic components. The MK-48 ADCAP MODS program is updating existing torpedoes with propulsion and

homing systems improvements for the very difficult shallow water environment.

The AN/SQQ-89 (V)X Surface Ship ASW Combat System will integrate COTS into surface ASW combat systems and represents significant cost savings over previous Military Standard Systems. The AN/SQQ-89 is the ASW Combat System for all surface combatants.

The Advanced Deployable System will provide the ability to rapidly and covertly deploy an underwater surveillance system designed for use in shallow littoral environments. Surveillance information will be available to the tactical commander for use in controlling the tactical situation in any region of interest.

C4I PROGRAMS

C4I programs are designing new systems that will expand the limited range of High Frequency (HF) and Ultra High Frequency (UHF) communication systems. The new approach is called the Copernicus Architecture. It focuses on five main assumptions:

- Modern precision weapons require more, not less, information.
- The operator should be able to "pull" information from the outside rather than having it "pushed" to him, clogging both physical and mental channels.
- Information must be handled in multiple formats (e.g., voice, video, data).
- Pathways for information must move beyond HF and UHF to include Extremely High Frequency, commercial SATCOM and other media.

- Technology should be "Commercial Off-the-Shelf" adhering to Open Systems standards.

This new architecture has become the basis on which the Joint Maritime Command and Information Strategy (JMCIS) is built as well as the joint counterpart Global Command and Control System (GCCS).

COOPERATIVE ENGAGEMENT CAPABILITY (CEC)

As you know, the Secretary of Defense has said that Cooperative Engagement Capability (CEC) is the biggest breakthrough in warfare technology since stealth. The CEC program is designed to link together Battle Group Anti-Air Warfare units and Airborne Early Warning aircraft into a force-wide anti-air combat system. CEC provides real-time, high quality, composite data over highly jam resistant links. From this data, each cooperating unit can develop its own fire control solution for weapon engagements against threats beyond its own sensor horizon. Engineering discussions are under way for interfacing CEC as an element within the Army Patriot system and Air Force Airborne Warning and Control System (AWACS). Cooperative Engagement has demonstrated the capability of being a force multiplier in various warfare areas and has significant joint warfighting applications. To date, CEC has been the major element in two at-sea demonstrations. Last year CEC was successfully employed in the Eisenhower Battle Group in a series of tests off the coast of Puerto Rico. Recently, CEC was used in a major joint services demonstration called "Mountain Top" off the coast of Hawaii. Detection data from sensors located several thousand feet above the sea surface was provided to an Aegis ship from which surface-to-air missiles were launched. In all cases, the target was successfully engaged, thus demonstrating the ability to improve our reaction time in engaging cruise missiles over land or water. In addition, this sensor network will enhance our capabilities in the joint Theater Ballistic Missile

Defense effort.

THEATER BALLISTIC MISSILE DEFENSE

The President has committed the Department of Defense to field effective theater ballistic missile defenses. Because of our mobility and forward presence, we see sea-based systems as the most promising solution to the ballistic missile defense problem. This has been dramatically demonstrated by the superb performance of USS BUNKER HILL (CG 52) in operations near Taiwan. Rapidly repositioning in response to National Tasking, that ship successfully detected and tracked the Chinese missile shots which landed in the vicinity of Taiwan. Complete tracking was possible from the moment the missile rose in its ascent phase above the horizon of the sensor. This is critically important if we are to achieve kill at a distance that will avoid harm to our own forces.

The Navy, in conjunction with the DoD Ballistic Missile Defense Office, has conducted analyses to determine the best approach to sea-based ballistic missile defense. Our conclusions point to a two tiered system. The lower tier system, which we are now calling the AREA system, builds on the current Aegis SPY-1 radar and the Standard Missile/Block IV, with only minimal modifications to the vertical launcher. By adding this capability as an additional mission to our Aegis Fleet, we reap maximum benefit from the $40 billion the American taxpayer has already invested in these state-of-the-art ships. Also, we take advantage of the thousands of successful intercepts completed in the Standard Missile Program.

This year the Navy is continuing work on the upper tier or exo-atmospheric portion of our two tiered, sea-based approach. We have termed this the THEATER WIDE system in recognition of its regional capability. We have conclusively demonstrated the concept of modifying an endo-atmospheric missile for exo-

atmospheric use, employing a Terrier missile with a Lightweight Exo-Atmospheric Projectile (LEAP) vehicle as the kill mechanism. Several kill vehicle concepts are being evaluated, including Army, DARPA, and contractor systems. At the same time, we anticipate we can greatly enhance the value of the Cooperative Engagement Capability by making available joint services sensor detection data.

GLOBAL BROADCAST SERVICE (GBS)

The Global Broadcast Service (GBS) program allows us to take advantage of commercial Direct Broadcast TV technology to increase the amount of information we can get to the field. The ability to use very small dish antennas--18 to 24 inches in diameter--will let us get information to small, mobile users nearly world-wide for the first time. As an interim measure, all the services will benefit from the Navy's Ultra High Frequency (UHF) Follow-On (UFO) satellites currently in production to get this capability in orbit in 1998. We are using the last three UFO satellites as hosts and integrating the GBS capability to add approximately 100 million bits per second communications capability nearly world-wide. The first satellite, UFO-8, is planned to cover the Pacific. Initial Operational Capability (IOC) is April 1998.

While this does not answer all of our communications needs, it is a revolutionary step in getting critical information such as imagery, weather and tasking orders to the warfighters in near real-time. It will also enhance quality-of-life by providing the capability to provide television broadcasts to ships at sea. The high capacity one-way transmission capability will free up capacity on other, critical two-way systems. The interim capability on UFO satellites will allow us to refine our operational concept and requirements to aid in the DOD Space

Architect's work in defining what the future, objective architecture should be.

ACQUISITION REFORM

The Department of the Navy is leading the way in acquisition reform, creating cultural change from the top to the bottom of the acquisition community. A fundamental revision of SECNAVINST 5000.2 acquisition instruction is currently underway which institutionalizes our new way of doing business. The new instruction streamlines the acquisition process by eliminating unnecessary regulation, delegating decision authority to the lowest possible organizational level, eliminating non-essential military specifications and standards where commercial specifications will do, and encouraging maximum use of Commercial-off-the-Shelf (COTS) equipment. High on the list of acquisition reform priorities is managing programs with an eye toward total life cycle costs. This includes designing platform systems using an open system architecture and allowing for follow-on technology insertion.

The Department has already moved to implement the strategies permitted under the new instruction. The F/A-18E/F Acquisition Excellence Award and SQQ-89 sonar suite programs were cited earlier in my testimony as positive examples of the new Navy acquisition process. Other examples include the AN/SQS-53A EC-16 sonar, winner of the 1995 "Heroes of Reinvention Hammer Award". This sonar replaces the antiquated AN/SQS-53A Sonar subsystems with "ruggedized" modern commercial electronics. The new system reduces life cycle costs by over $100 million, system weight by 25,000 pounds, Program Manager requirements by 500 manhours, sparing requirements by over 80%, and operational downtime by over 75%. Furthermore, this system took just 28 months from program approval to successful sea trials. The Air Combat Electronics Program (ARC 210) showed similar results as the winner of the "Secretary of Defense Superior Management Award".

The ARC 210 Integrated Product Team implemented several innovative acquisition management practices which resulted in five years of declining ceiling prices and $65 million in savings.

The Navy's strong and continuous commitment to acquisition reform resulted in the establishment of the Acquisition Reform Office in January 1995. This office is responsible for driving the acquisition reform agenda, including development of the Acquisition Center of Excellence. The Center will contain a virtual library of information available to all Program Executive Officers and Program Managers for use in developing acquisition strategies, obtaining up-to-date acquisition information, reviewing lessons learned, and testing world-class acquisition ideas, to support enhanced productivity and reduced costs.

CONCLUSION

In summary, Mr. Chairman, in the 156 days I have been in this job, I have met hundreds of people in the Navy acquisition community, in and out of government, who work hard every day to make acquisition success a routine occurrence. My guiding principles are to communicate fully and openly with the Congress, industry, our war fighters, and our acquisition professionals, to do everything in my power, use whatever leverage my office can muster, to make sure our Sailors and Marines are provided with the best equipment possible for the lowest investment possible. My highest priorities are to bring stability to our acquisition programs-- this alone could save billions of dollars; strengthen our industrial base-- we are the greatest maritime power in the world and I see no reason why we should not have the greatest maritime industry in the world; and ensure that our children and grandchildren who serve in the Navy and Marine Corps of the future, defending America, have what they need to prevail. We believe that the Department of the Navy's budget request for fiscal year 1997 supports a rightsized, recapitalized and ready

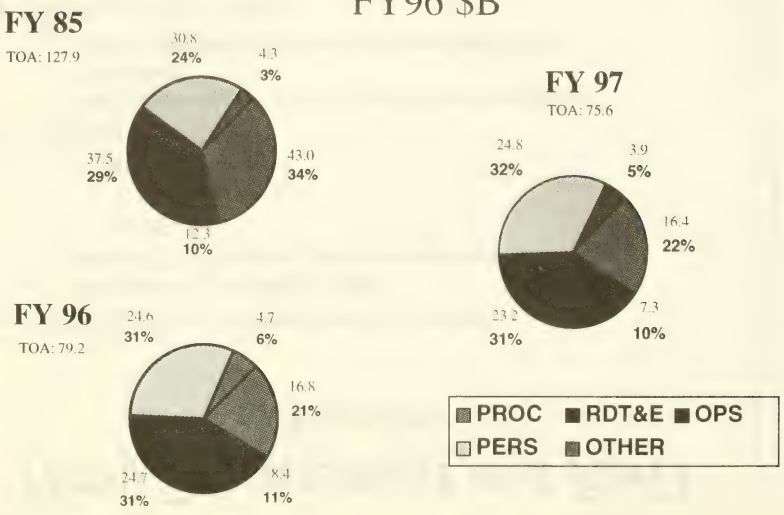
Navy-Marine Corps team. We appreciate the support provided by the Congress and look forward to working together toward a secure future for our Nation.

Navy Procurement and R&D
Overview

- FY 97 Last Year of Procurement Decline
 - $23.8 Billion FY 97 Budget Request
 - 6 Ship SCN + 2 National Defense Sealift ships
 - » 4 DDG-51
 - » 2 AE Conversions
 - 40 Aircraft Procurement
- Guiding Principles
 - Work with Congress, Industry, Warfighters, Acquisition Professionals
 - Strong Continuous Emphasis on Acquisition Reform
- Building for the Future
 - Smart Ship -SC-21
 - Arsenal Ship -V-22
 - CVX-78 -ISF

Budget Comparison

FY96 $B



Acquisition Reform

A New Way of Doing Business

- Strong, Continuous Emphasis on Acquisition Reform
- Program Stability
- Management by Life Cycle Cost
- Acquisition Center of Excellence
- Commercial-Off-The-Shelf
- Specs and Standards Reform
- Integrated Product Teams
- Partnership with Industry

Acquisition Reform
We're Just Getting Started

- F/A-18E/F Super Hornet
 - DoD Acquisition Excellence Award
- AN/SQS-53A Sonar
 - 1995 Heroes of Reinvention Hammer Award
 - $100 Million Savings
- ARC 210 Radio
 - SECDEF Superior Management Award
 - $65 Million Savings
- SQQ-89 Sonar Suite
 - $30 Million to $5 Million Unit Price
- Cooperative Engagement Capability
 - $31.2 Million Savings FY 95 - FY 01
 - Milspecs Dropped From Over 125 to Less than 20
- LPD-17
 - Zero Milspecs if Possible

Air Programs

- F/A-18E/F
 - 12 Aircraft Funded in FY 97
 - 1000 Total Planned Procurement
- V-22
 - Marine Corps Highest Priority
 - *Operational Maneuver From the Sea* Concept
 - MV-22 Acquisition Profile-- 425 A/C in 27 Years
 - » Out Year Acceleration if Possible
- Joint Strike Fighter (JSF)
 - First Delivery to Operational Unit 2008
 - VSTOL Marine Corps Variant
 - Must Maintain JSF Schedule

Ship Programs

- SEAWOLF
 - Second Increment Funded in FY 97-- $699 Million
 - Schedule on Track for FY 96 Delivery
 - Within Congressional Cost Cap of $7.2 Billion
- New Attack Submarine
 - Congressionally Mandated Restructure
 - » Competition
 - » New Technology
 - Fully Compliant with Congressional Direction
- DDG-51
 - 4 for FY 97 (6 Ships Total FY 96/97)
 - 2 Year Buy Saves approx $300 Million

Shipbuilding II
For the Future

- Smart Ship
 - Smaller Crew -- USS YORKTOWN (CG-48) Pilot Project
- Arsenal Ship
 - Massive Strike Capability-- 500 to 1,000 Missiles
 - Low Manning-- Requires Only 50 Crew
 - Very Low Life Cycle Costs
- CVX-78-- Next Generation Aircraft Carrier
 - CVX-78 Will Remain in Service Past 2060
 - 100,000 Crew Will Serve During Service Life
 - Will See "Grandson" of JSF
- SC-21-- 21st Century Combatant
 - Follow DDG-51 Class as Next Generation Combatant
 - Begin Delivery FY 2008

Marine Corps
Ground Priorities

- Advanced Amphibious Assault Vehicle
 - #1 Ground Development Program
 - *Operational Maneuver From The Sea* Concept
 - In Source Selection Now
- Light Weight 155mm Howitzer
 - Joint Marine Corps/Army Program
 - In Source Selection Now
- Medium Tactical Vehicle Remanufacture
 - 30%-40% Less Than New Vehicle
 - Joint Program Harmonized with Army
- Predator- Short Range Assault Weapon
 - Joint Program with Army
 - Significant Savings in Unit Costs

Mine & Undersea Warfare

- Mine Warfare
 - Mine Warfare Plan Fully Funded in FY 97
 - DoD Certification Complete
 - MHC-51Class Mine Hunters-- 12 Ships Total
 - Remote Minehunting System-- Organic Capability
- Anti-Submarine Warfare
 - Airborne Low Frequency Sonar (ALFS)
 - AN/SQQ-89 ASW Combat System
 - Advanced Deployable System (ADS)
 - Lightweight Hybrid Torpedo-- IOC 2001

C4I

Command, Control, Communication, Computers & Intelligence

- Cooperative Engagement Capability
 - Anti-Air Warfare Network
 - Over-The-Horizon Fire Control Solutions
 - "Mountain Top" Demonstration
- Theater Ballistic Missile Defense
 - Lower Tier-Aegis Radar + Standard Missile
 - » Fully Funded
 - Upper Tier- Progressing on Measured Course
- Global Broadcast Service
 - Commercial Direct Broadcast TV Technology
 - Enormous Increase in Capability for Minimum Cost

Fiscal Year 1997
Nuclear Attack Submarine Program

Assistant Secretary of the Navy
(Research, Development and Acquisition)
and
Deputy Chief of Naval Operations
(Resources, Warfare Requirements and Assessment)

March 1996



Nuclear Attack Submarine Program
SEAWOLF Status

- Projected to complete program within the FY 96 Cost Cap of $7.223B
- SSN 21 - Initial Sea Trials - Spring 1996
 - Schedule will be adjusted to stay within the Cost Cap
- SSN 22 - 60% complete
 - Seeing significant learning in the construction process
- SSN 23 - Started Construction December 1995
 - $699M Requested in FY 97
 - Remaining $105M to be requested in FY 98



Nuclear Attack Submarine Program
New Attack Submarine

- Emphasis on **Performance**
 - Stealth - acoustic and non-acoustic
 - Multi-Mission - Littoral and Blue Water
- Emphasis on **Affordability**
 - Acquisition Reform Initiatives
 - Control overhead - Shipbuilder downsizing
 - » Computer-Aided Design
 - » Integrated Product and Process Development
 - Leverage off SEAWOLF Technology
- Emphasis on **Flexibility**
 - Open System Architecture - Compatible with Commercial Off-The-Shelf hardware and software
 - Reconfigurable weapons space
 - Modular Construction, Isolated Deck Structure

Nuclear Attack Submarine Program Competition

- Secretary of the Navy certified Navy supports competition for Attack Submarines - Feb 1996
- Building a submarine at Newport News as early as FY 99 can be supported based upon design progress to date
- Have a written agreement between Navy and Shipbuilders to support competition
- Newport News involvement in 1996:
 - $10M FY 96 RDT&E for engineering development
 - About $9M FY 96 SCN for design transfer
- Navy FY 97 Budget Request identifies $35M to continue design transfer
- Nuclear components under contract. Complete set for FY 98 ship and partial set for the second ship



Nuclear Attack Submarine Program
VADM Baciocco Panel Results

- Proceed with the New Attack Submarine but commit to continuous evolution
- Define a single product manager for all attack submarines responsible for acquisition, life cycle support, and technology maturation/insertion
- Establish a significant, stable, continuing R&D program under the product manager that supports and matures major advances, reflects technology base opportunities, and responds to future missions
- Ensure that the technology base community understands the performance needs identified by the product manager, involves the shipyards as performers, performs utility analysis before pursuing evolutionary improvements, and has the courage to pursue potentially revolutionary technologies
- Specific technologies that should be pursued:
 - Robust Hydrodynamic Program
 - Active Controls and Mounts
 - Alternative Sail Designs
 - Advanced Sensors
 - Electric Drive
 - External Weapons

Nuclear Attack Submarine Program
March 1996 Report

- The report prepared by DOD complies with the FY 96 Defense Authorization Act
- Navy can execute any of the proposed options if funded
 - Congressional option requires approximately $3.8B additional SCN funding over period 1997-2001 for competition and construction of 2 additional submarines
 - Additional Core RDT&E funding needed for transitioning technologies - estimate at least $60M per year
 - Substantial RDT&E funding needed to accelerate the insertion of specific new technologies
- USD(A&T) oversight established with a clear structure
 - Submarine Technology Oversight Council

Nuclear Attack Submarine Program
Construction Alternatives

	FY98	FY99	FY00	FY01	FY02	FY03	FY04
Baseline Milestone II	1-EB	0	1-EB	0	2-EB	2-EB (Potential Compete)	2-EB
Alternative #1	1-EB	1-NN	1-EB	0	1-EB 1-NN Compete	1 Compete	2
Alternative #2	1-EB	1-NN	1-EB	1-NN	1-EB	1-NN Compete	1-EB 1
Alternative #3 Congressional Program	1-EB	1-NN	1-EB	1-NN	0	1-EB 1-NN Compete	2

V-22 "Osprey"
Program Overview



for the
House National Security Committee

29 March 1996

V-22 Performance Requirements

- VTOL
- SPEED
- LONG RANGE/RADIUS
- PAYLOAD
- SURVIVABILITY
- SHIPBOARD COMPATIBILITY
- SELF-DEPLOYABILITY
- AERIAL REFUELING



Recapitalization Drivers



- AGED FLEET; TECHNICAL OBSOLESENCE
- DECLINING INVENTORY
- INADEQUATE PERFORMANCE
- ESCALATING COST OF OWNERSHIP

Flight Test Accomplishments

- 294 KNOTS AT 18,500 FT
- 349 KNOTS IN 10 DEGREE DIVE
- 21,500 FT FLIGHT ALTITUDE
- CLIMATIC LABORATORY TESTING
- BLADE FOLD/WING STOW DEMOs
- FLIR EVALUATIONS
- ICING TRIALS
- STRAKE EVALUATION
- ENVELOPE EXPANSION: 3.1G's AT 300 KNOTS
- DOWNWASH EVALUATION
- GROSS WEIGHTS:37K-51,150 LBS
- 4,000# SLING LOAD TO 175 KNOTS
- SEA TRIALS, USS WASP
- SIMULATED AERIAL REFUELING
- FORMATION FLYING
- NIGHT & SIMULATED IFR OPS
- 1200 MILE CROSS-COUNTRY FLIGHTS
- OT-IIA OPERATIONAL ASSESSMENT
- HIGH/HOT HOVER PERFORMANCE
- RESCUE HOIST AND FAST ROPE DEMONSTRATION

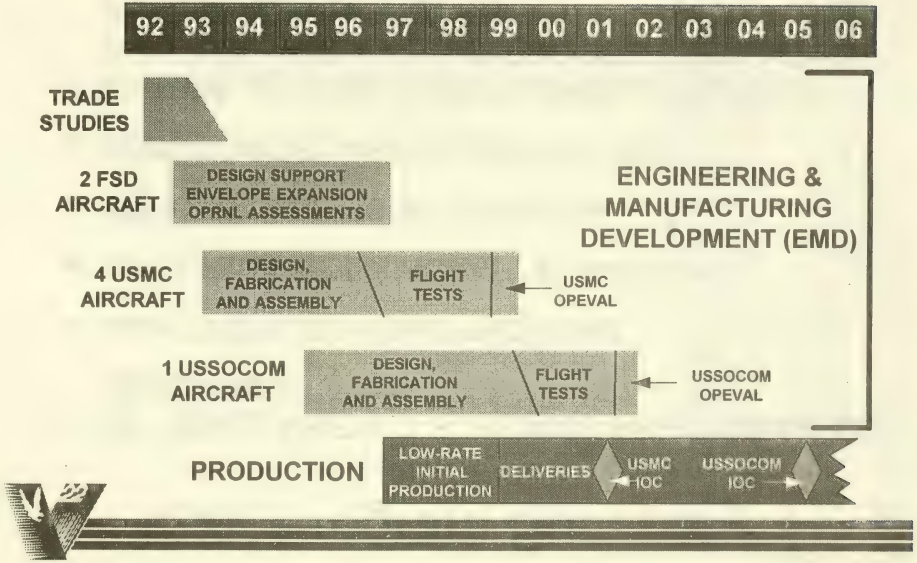
OVER 1000 FLIGHT HOURS. OVER 900 FLIGHTS.

What Are We Doing Now?

- REDUCING RISK
- CONTINUING DEVELOPMENTAL AND OPERATIONAL TESTING
- BUILDING 4 PRODUCTION-REPRESENTATIVE AIRCRAFT
 - Improving Performance
 - Reducing Weight
 - Reducing Cost
- VALIDATING PRODUCTION PROCESSES
- INTEGRATING CV-22 MISSION EQUIPMENT
- IMPLEMENTING ACQUISITION REFORMS

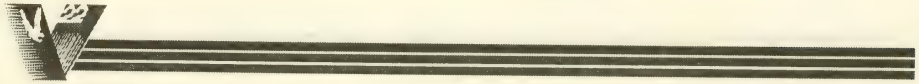


Schedule Overview



V-22 Program Summary

- ON TRACK; MEETING SCHEDULE & PERFORMANCE OBJECTIVES
- AN INTEGRATED JOINT PROGRAM
- FIRST FLIGHT OF AIRCRAFT #7 IN DEC 96
- USMC DELIVERIES BEGIN IN 1999
- USSOCOM DELIVERIES BEGIN IN 2003
- MATURE, LEADING-EDGE TECHNOLOGIES AND DUAL-USE APPLICATIONS PROVIDE TREMENDOUS POTENTIAL FOR GROWTH



Mr. HUNTER. I want to thank everybody for hanging in here so long. This is a very, very important issue for the United States. We are actually, I think, in round two here.

I want to thank the Secretary, of course, Admiral Lopez, and General, you sure had a tough job here today watching. You were not even able to hold the coats while everybody else was fighting here.

Tony Battista, thank you for what you have contributed to this committee and to national security. We appreciate you.

We do need for the record a copy of the agreement that you engineered between the yards, Mr. Secretary, for the record.

[The information of Mr. Douglass follows:]

HOUSE NATIONAL SECURITY COMMITTEE
SUBCOMMITTEE ON RESEARCH AND DEVELOPMENT
SUBCOMMITTEE ON PROCUREMENT
HEARING: FY 1997 NAVY/MARINE CORPS ACQUISITION
29 MARCH 1996
INSERT FOR THE RECORD
PAGE 198 LINE 4875

(The information follows:)

The Memorandum of Agreement among the Navy, Electric Boat Corporation and Newport News Shipbuilding and Drydock Company concerning the New Attack Submarine Program is attached.

MEMORANDUM OF AGREEMENT AMONG THE DEPARTMENT OF THE NAVY, ELECTRIC BOAT CORPORATION (EB) AND NEWPORT NEWS SHIPBUILDING AND DRYDOCK COMPANY (NNS) CONCERNING THE NEW ATTACK SUBMARINE PROGRAM

1. BACKGROUND AND PURPOSE. The purpose of this document is to promote cooperative and timely data exchange between EB and NNS in order to facilitate the competition requirements of section 131 of the National Defense Authorization Act for Fiscal Year 1996 (the "Act").

The Act authorizes funds to be appropriated for long lead and advance construction and procurement of components for a Fiscal Year 1998 New Attack Submarine, which shall be built by Electric Boat Corporation (EB), and a Fiscal Year 1999 New Attack Submarine, which shall be built by Newport News Shipbuilding (NNS). The Act also requires the Secretary of the Navy to certify that the procurement of nuclear attack submarines to be constructed (a) beginning after Fiscal Year 1999, or (b) beginning after Fiscal Year 2001 if four submarines are procured, as provided for in subsection 131(c) of the Act, will be under one or more contracts awarded after competition between EB and NNS on the basis of price. The Secretary of the Navy so certified on February 14, 1996.

2. DESIGN DATA TRANSFER. The New Attack Submarine design effort is under contract with EB. NNS will be provided design deliverable information in a manner and scope that is generally consistent with that provided in the latest submarine program (SEAWOLF). Design data transfer will be conducted in the most cost-effective manner to support construction of follow ships at NNS. The specific design data transfer process will be defined in a contract or contracts between the Navy and EB, the Navy and NNS, or EB and NNS, as appropriate.

3. DESIGN IMPROVEMENTS. In order to ensure that the New Attack Submarine program benefits from evolving technological and design improvements, the procedures set out below will be followed:

(a) The design for the Fiscal Year 1998 New Attack Submarine will be used as the base design by both shipbuilders. For consistency and cost effectiveness, the Navy has designated EB as the Lead Design Yard to retain the master design database. EB will incorporate into the master design database those new technologies that are approved by the Navy. The specific details on the maintenance of the master design data base will be defined in a contract or contracts between the Navy and EB.

(b) The Navy will compete research and development initiatives relevant to the New Attack Submarine in accordance with section 2304 of title 10, United States Code, unless restriction of such competition would be appropriate under section 2304. Both EB

and NNS will have equal access to all relevant Navy New Attack Submarine technology data, including data provided under such submarine research and development initiatives.

(c) For each ship in the pre-competitive phase of the program, NNS and EB will propose improvements to the base design to incorporate those new technologies that make the ship more capable and more affordable. These proposals will include analyses of the feasibility of integrating the new technologies during each ship's construction period.

(d) The design improvements proposed by the shipbuilders will be reviewed by the Navy to determine which changes will be included in follow ships. This process will be streamlined to ensure appropriate officials address cost, risk and benefit implications of the proposed design changes in a prompt manner.

4. INTEGRATED PROCESS TEAMS. The Navy will establish Integrated Product and Process Development teams at NNS to support the New Attack Submarine program.

5. UPDATED DESIGN BASE. An updated design base for serial production of submarines beginning with the first competed submarine will incorporate a combination of new construction processes and technologies based on the experience gained from building New Attack Submarines or from other appropriate sources.

6. EFFECTIVE DATES. This agreement becomes effective upon signature by all parties and shall remain in effect, to the extent it is not inconsistent with the requirements of future legislation, until superseded or terminated by mutual consent.

7. TERMS OF AGREEMENT. This document is not intended to create or alter any contractual rights or obligations of the parties. In the event of any conflict or inconsistency between terms in this agreement and program contracts, the contracts shall govern.

John K. Welch
President,
Electric Boat
Corporation

Date: APR 05 1996

William P. Fricks
President and CEO,
Newport News
Shipbuilding and
Drydock Company

Date: APR 05 1996

John H. Dalton
Secretary of the Navy

Date: APR 05 1996

Mr. HUNTER. We will have some questions for the record. A lot of our work is going to be done in out-of-hearing briefings, but let us get started on this program.

Thanks to everyone for this marathon session.

Mr. DOUGLASS. Thank you, sir.

Mr. HUNTER. The hearing is adjourned.

[Whereupon, at 3:27 p.m., the subcommittee was adjourned.]

[The following questions and answers were submitted for the record:]

HOUSE NATIONAL SECURITY COMMITTEE
SUBCOMMITTEE ON RESEARCH AND DEVELOPMENT
SUBCOMMITTEE ON PROCUREMENT
HEARING: FY 1997 NAVY/MARINE CORPS ACQUISITION
29 MARCH 1996
QUESTION FOR THE RECORD
QUESTION NUMBER 01

DREDGING

QUESTION: The Navy has provided the House National Security Committee information on the Navy's dredging requirements. What is the Navy's plan for satisfying these requirements?

ANSWER: Navy dredging is categorized as either Construction or Maintenance. Construction dredging is performed in support of a new requirement or waterfront upgrade/replacement project. The Navy has three construction dredging projects currently programmed for FY 1997-2003 (FYDP). Specific projects beyond FY 2003 have not yet been identified. Maintenance dredging is performed to offset the effects of siltation as required to meet operational readiness. The number of maintenance dredging operations is based on siltation rates/aquatic plant growth, and varies depending upon weather conditions, location, topographical changes and local development.

HOUSE NATIONAL SECURITY COMMITTEE
SUBCOMMITTEE ON RESEARCH AND DEVELOPMENT
SUBCOMMITTEE ON PROCUREMENT
HEARING: FY 1997 NAVY/MARINE CORPS ACQUISITION
29 MARCH 1996
QUESTION FOR THE RECORD
QUESTION NUMBER 02

DREDGING

QUESTION: Is this plan fully funded? If not, to what degree is it funded? What is the impact of a funding shortfall?

ANSWER: Thirteen (13) construction dredging projects are currently identified. Three (3) projects are programmed and ten (10) projects are unprogrammed. The three (3) programmed projects represent 36% of the total estimated construction cost. The Navy backlog for maintenance dredging totaled $51.5 million in FY 1995. If dredging projects are not fully funded in a timely manner, siltation will accumulate. Depending upon the degree of sedimentation, Navy operations can be impacted in several ways. First, access to harbors, channels and turning basins may become limited and dependent on high tides. Navigational safety may be reduced if hull clearances are allowed to become marginal. In addition, suction of sediment into sea chests can lead to malfunctions of the turbine generator and distilling plants as well as cause excessive wear of the ship's machinery and pump components.

HOUSE NATIONAL SECURITY COMMITTEE
SUBCOMMITTEE ON RESEARCH AND DEVELOPMENT
SUBCOMMITTEE ON PROCUREMENT
HEARING: FY 1997 NAVY/MARINE CORPS ACQUISTION
29 MARCH 1996
QUESTION FOR THE RECORD
QUESTION NUMBER 03

DREDGING

QUESTION: Are channel, pierside, and turning basin depths adequate in U.S. ports used by U.S. Navy ships and ships planned for use in contingency logistical plans? Will these depths be adequate over the next decade as logistics ship's drafts increase?

ANSWER: The depths in waterways used by the U.S. Navy are generally adequate for our existing ships, Military Sealift Command (MSC) ships, and inactive ships that may be activated during contingency operations. The actual depths in these waterways varies over time due to sedimentation and shoaling. Maintenance dredging will be required at some locations to maintain necessary depths. Depths at some locations may also be inadequate for future deeper draft vessels, thus requiring deeper dredging depths.

HOUSE NATIONAL SECURITY COMMITTEE
SUBCOMMITTEE ON RESEARCH AND DEVELOPMENT
SUBCOMMITTEE ON PROCUREMENT
HEARING: FY 1997 NAVY/MARINE CORPS ACQUISITION
29 MARCH 1996
QUESTION FOR THE RECORD
QUESTION NUMBER 04

DREDGING

QUESTION: What are the plans for disposal of contaminated dredge materials resulting from activities designed to meet Navy's dredging requirements? Are there alternatives? What are they?

ANSWER: The Navy intends to dispose of contaminated dredge material in accordance with all environmental regulations. Any contaminated dredge material will be disposed of in appropriate sites, capped by clean dredge material or other suitable materials or treated to remove contaminants.

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DREDGING

QUESTION: What alternatives are being considered should the Navy's plan not be met? What is the adverse impact of each of these alternatives?

ANSWER: The Navy expects to meet its dredging plan, however, an alternative off-shore plan is being examined. Under this alternative, deep-draft ships would anchor in a designated anchor zone, and personnel, equipment, etc. would be transported to and from the ship with shallow-draft vessels. ADVERSE IMPACTS (Operations): Weather dependent, time consuming, safety and cost.

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DREDGING

QUESTION: Were any difficulties experienced or revealed during the logistical buildup for "Desert Storm" related to inadequate depth in U.S. ports?

ANSWER: During Operation Desert Storm, MSC did experience loadout constraints at two major U.S. ammunition ports, Sunny Point, NC and Concord, CA. Both locations experienced a high degree of river silting. Pierside depths have ranged between 32' and 35' at Sunny Point between dredging operations. LASH vessels, with drafts ranging from 35'-41', could only be loaded to approximately 80% capacity at Sunny Point and their remaining ammunition barges had to be towed out to sea for instream loading.

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QUESTION NUMBER 07

DREDGING

QUESTION: Does the Navy expect any similar U.S. port difficulties in meeting the logistical buildup requirements associated with the envisioned two military requirements contingencies (MRCs)? If so, what is the anticipated impact? What solution to reduce this adverse impact are planned?

ANSWER: It is reasonable to expect the Navy would experience similar U.S. port difficulties in meeting buildup requirements associated with two MRCs. Due to siltation, ports must periodically be dredged. Timeframes for dredging are contingent upon requirements and funding availability. Should a dual MRC occur before dredging is accomplished at particular sites, existing depths may limit the size of vessel which can enter those ports. Any loadout for that particular ship would have to be accomplished at another port with sufficient depth, which could potentially delay the loadout and create congestion at the deep water ports.

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QUESTION NUMBER 08

NEW ATTACK SUBMARINE

QUESTION: Has the Navy costed out the directive of the 96 Authorization bill to build four separate submarines, each with a different package of technology? If so, what is that cost and is it possible for the Navy to absorb this submarine profile within its programmed budget authority? If not, please provide an answer for the record.

ANSWER: As required by the National Defense Authorization Act for Fiscal Year 1996, the Secretary of Defense Report on Nuclear Submarine Procurement and Submarine Technology identified advanced new technologies that are in various phases of research and development, as well as evolving commercial-off-the-shelf technologies, that are candidates to be incorporated into the New Attack Submarine design. A matrix listing these candidate technologies, cost estimates, possible development schedules and acceleration risks from Appendix C of the report is attached.

It would be difficult for the Navy to absorb the cost of developing and inserting all of the technologies identified in Appendix C of the Secretary of Defense's report in its programmed budget authority. The Navy is, however, evaluating its investment in submarine technology, including recommendations by the Independent Submarine Assessment Panel. It is important to note that the New Attack Submarine, without the technologies in the attached matrix, will be a highly capable, technologically robust warship that meets all mission requirements established by the Joint Chiefs of Staff.

The Secretary of Defense Report also included the estimated cost of building four submarines as directed by the Authorization Act. The estimate, provided in the table below, is based on the New Attack Submarine design. Additional SCN costs above those listed in the table can be anticipated for non-recurring design costs associated with incorporating new technologies.

	FY97	FY98	FY99	FY00	FY01	TOTAL
Number of Ships	0	1	1	1	1	4
Shipbuilder		EB	NNS	EB	NNS	
SCN Funds Required	$0.8	$2.9	$2.5	$2.1	$2.1	$10.4

Appendix C

Emerging Technologies which have Potential for Future Insertion

This appendix consists of a table of emerging submarine technologies grouped by technical areas with estimates of Research and Development (R&D) costs, risk, and Ship Conversion, Navy (SCN) cost impact, followed by a brief written description of the specific technologies. The table includes the full range of technologies that could be inserted into the New Attack Submarine that are currently unfunded as well as technologies identified as part of the recent Navy review of submarine technologies.

The table headings are defined below:

Column 1, Cat (Category)-This column lists the priority of the technology based on a high level consideration of submarine military needs. Category I (first priority) consists of those technologies which will increase the margin of submarine acoustic superiority. Category II (second priority) lists those technologies which are expected to provide improved submarine affordability or producibility. Category III (third priority) are those technologies which could provide enhanced performance or new capabilities over the baseline design.

Column 2, Technical Areas/Technology Listing-This column lists the emerging technologies considered, grouped by technical areas. Specific descriptions of these technologies follow the table.

Column 3, Missions-This column identifies the submarine mission areas applicable to each technical area. A definition of each mission area is provided in Appendix A.

Column 4, Maturity-This column provides an estimate of the time required to develop each technology for installation. For each technology, an "x" is placed in the column(s) corresponding to the Fiscal Year the technology can be considered for installation.. These estimated dates assume that the R&D funding in column 5 and a core investment increase of $60M per year are both provided.

Column 5, R&D Total Cost-This column provides an estimate of the total Fiscal Year 1997 and POM 98 R&D funding (above current controls) required to mature technologies in each technical area for installation. This total takes into account technology development that is currently funded in the Navy and the Defense Advanced Research Project Agency (DARPA) and assumes that this funding will continue at planned levels. Note that technologies targeted for Fiscal Year 2002 and beyond may require additional R&D funding after Fiscal Year 2003.

Column 6, SCN Cost Impact-This column estimates the ship construction cost impact of each technology if it were to be installed on the New Attack Submarine. "L" indicates low impact (less than $10 million), "M" indicates moderate impact ($10 million to $100 million), and "H" indicates high impact (greater than $100 million). Note that there are two types of SCN costs to be considered, the non-recurring (costs associated with installation of the technology in the first ship), and recurring ship costs (costs associated with installation of the technology on each subsequent ship).

Column 7, R&D Risk-This column indicates the estimated level of risk to develop each technology for insertion in the earliest hull in Column 4. ("L" - Low, "M" - Moderate, "H" - High).

Column 8, Acceleration Risk-This column indicates the estimated risk associated with accelerating each technology to insert it on an earlier hull. (Note that any funds necessary to achieve such an acceleration have not been determined).

Emerging Technologies with Potential for Future Submarine Insertion

Cat	Technology Areas/Listing	Missions	Maturity Year					Estimated R&D Total Cost ($M)	SCN Cost Impact	R&D Risk	Accel Risk
			FY98	FY99	FY00	FY01	FY02+				
I	**Advanced Passive Sonar Processing**	ASW,ASUW, BG, I&W						$58			
	Passive Ranging/TMA		X	X	X	X	X		L	L	N/A
	Large Aperture Processing		X	X	X	X	X		L	L	N/A
	Matched Environmental Processing				X	X	X		L	M	M
	TSMS Improvements		X	X	X	X	X		L	L	N/A
I	**Advanced Acoustic Sensors**	ASW,ASUW, BG,I&W						$107			
	Near Term MLTA		X	X	X	X	X		L	L	N/A
	High Gain MLTA						X		M	H	H
	LWAA Fiber Optics				X	X	X		L	M	H
	High Gain Hull Array						X		H	H	H
II	**Affordability & Maintainability**	ALL						$212			
	EMA/EHA						X		M	L	M
	Welding				X	X	X		L	L	M
	Power Electronics						X		M	H	H
	Advanced Propulsor Fabrication						X		L	M	H
	Advanced Hybrid Propulsor				X	X	X		L	M	H
	Advanced Coatings			X	X	X	X		M	M	H
	Rim Driven Motors						X		M	L	M
	Elastomeric Ejection System (EES)				X	X	X		M	M	H
III	**Advanced Hydro & Maneuver Control**	MIN,SOF,I&W						$87			
	Advanced Sail						X		M	M	H
	Advanced Control Surfaces						X		M	M	M
	Low Speed Maneuvering			X	X	X	X		L	M	H
III	**Advanced Combat Systems**	ALL						$80			
	Data Fusion		X	X	X	X	X		L	L	N/A
	Advanced Command & Control Workstation			X	X	X	X		L	L	M
	Situational Awareness		X	X	X	X	X		L	L	N/A
	Advanced TDAs (ISSIPS)		X	X	X	X	X		L	L	N/A
	Advanced Covert Navigation					X	X		M	M	H
	Advanced Tactical Scene Generation (TSOA)					X	X		M	H	H
III	**Self-Defense**	ALL						$221			
	Anti-Torpedo Torpedo						X		L	H	H
	Electro-Fiber Optic Guided (EFOG) Missile						X		L	M	H
	Exposed Mast Detectability						X		M	M	H

Cat	Technology Areas/Listing	Missions	Maturity Year					Estimated R&D Total Cost ($M)	SCN Cost Impact	R&D Risk	Accel Risk
			FY98	FY99	FY00	FY01	FY02+				
	LIDAR Intercept Receiver				X	X	X		L	L	M
	Accelerate EM Silencing (Closed loop)		X	X	X	X	X		L	L	N/A
	Advanced Electromagnetic Silencing				X	X	X		L	M	H
	Advanced CM Launchers						X		M	M	H
	Impv. Int'l CM Launchers				X	X	X		L	L	M
	Improved Countermeasures						X		L	H	H
III	**Advanced Communications**	ALL						$76			
	Subsurface Antennas						X		L	M	H
	Acoustic Communications						X		L	H	H
	Hullborne ELF Antenna						X		L	L	M
	Global Broadcast Service						X		L	L	H
III	**Advanced Propulsors**	ALL						$100			
							X		H	H	H
III	**Structural Acoustics**	ALL						$230			
	Integrated Deck Structures						X		H	M	H
	Advanced Mounting				X	X	X		L	M	H
	Active Control				X	X	X		L	L	M
	Advanced VR (AVR &Passive VR)					X	X		M	M	H
	Active Control						X		H	H	H
III	**Wake Detection**	ASW						$60			
	Wake Detectors						X		M	H	H
III	**Advanced Weapons**	ASW,ASUW, BG,STW,MIN						$516			
	Half-Length Torpedo						X		L	M	H
	Dual Warhead Mine						X		L	M	H
	Advanced Wide Area Submarine Mine						X		L	M	H
	Tomahawk Upgrades-TBIP		X	X	X	X	X		L	L	N/A
	Advanced Strike Weapons						X		H	M	H
III	**Off Board Sensors**	I&W,STW, MIN,BG,SOF						$120			
	Advanced UUV						X		L	M	H
	UAV Command, Control & Communications		X	X	X	X	X		L	L	N/A
	Submarine Launched UAV						X		M	L	M

Emerging Technologies with Potential for Future Submarine Insertion

Cat	Technology Areas/Listing	Missions	Maturity Year					Estimated R&D Total Cost ($M)	SCN Cost Impact	R&D Risk	Accel Risk
			FY98	FY99	FY00	FY01	FY02+				
III	**Advanced Active Sonar**	ASW,ASUW, BG,MIN						$68			
	Deployable Bi-Static Source						X		L	M	H
	Bi-Static Signal Processing		X	X	X	X	X		L	L	N/A
	MF Processing Improvements		X	X	X	X	X		L	L	N/A
III	**Advanced Electronic Warfare**	I&W,BG, STRIKE,ASUW						$48			
	New Threat Signal Measurement		X	X	X	X	X		L	M	N/A
	Non-Acoustic Sensors (Bi-static Radar, Air Acoustics)				X	X	X		L	M	M
	Advanced Photonics				X	X	X		L	L	M
	Advanced ESM				X	X	X		L	M	H
III	**HF Sonar**	ASW,MIN, SOF,BG						$40			
	Advanced Mine Detection Processing		X	X	X	X	X		L	L	N/A
	Weapons & Shipboard Sonar Interoperability				X	X	X		L	M	H
	Advanced HF Receiver						X		H	H	H
	HF Image Processing		X	X	X	X	X		L	L	N/A
III	**Mission Specific Hull**	STW,MIN,SOF						$30			
	Sections Feasibility & Concept Designs						X		L	L	L
							Total	$2,053			

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NEW ATTACK SUBMARINE

QUESTION: Does the Navy plan to direct one sub to EB in 1998 and one sub to Newport News in 1999? If so, what is the price premium to have two yards build these subs rather than competing these two subs on a "winner take all" basis?

ANSWER: Yes, the Navy plan is to direct one submarine to Electric Boat Corporation in Fiscal Year 1998 and one submarine to Newport News Shipbuilding in Fiscal Year 1999. The premium for the second New Attack Submarine (NSSN) of the class (the first NSSN at Newport News) is estimated to be $500M more than the second of the class to be built at Electric Boat.

A winner take all competition would clearly eliminate any future potential for alternative submarine shipbuilders and effect cost throughout the entire class of NSSNs - not just the first two hulls. A winner take all competition could result in one of the shipbuilders ceasing operations which would result in significant cost growth on existing contracts.

The Navy is currently studying the effects of very low rate competition and its effect on overall program cost. Preliminary estimates indicate a 5-10% increase in overall program procurement cost by maintaining two shipbuilders at a rate of less than 2 NSSNs per year for 30 hulls.

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QUESTION NUMBER 10

NEW ATTACK SUBMARINE

QUESTION: What is your reaction to this proposal: Have EB and Newport News each build a prototype sub, and after an appropriate period of time for lessons to be learned, have a competition between these two yards to build the first few subs of a new attack class?

ANSWER: Building only two submarines in seven years would not support the JCS military requirement for advanced submarines, the Navy would not maintain overall submarine force levels and the industrial base would be in jeopardy. The shipyards and the suppliers require low rate, steady production to remain viable. Building a submarine takes six to seven years. The submarine vendor base, both nuclear and non-nuclear suppliers, would not survive if only two new submarines are started during the period it would take to deliver and test two prototype submarines. In addition, Electric Boat would not have enough construction work during that period to remain viable.

The Navy has certified that New Attack Submarines will be competed after the Fiscal Year 1999 submarine, or if the four ship plan is adopted, after Fiscal Year 2001. The NSSN program currently has an active ongoing effort to gather lessons learned from other shipbuilding programs and incorporate those lessons learned into the NSSN design. This process will continue throughout the construction of the NSSN.

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QUESTION NUMBER 11

ARSENAL SHIP

QUESTION: Is this ship an alternative to existing Navy Capabilities, and if so, identify what ships the Arsenal Ship would replace, or is the Arsenal Ship intended to give the Navy a capability it does not presently have?

ANSWER: Arsenal Ship represents an affordable and much needed enhancement to our existing force of carriers, land attack capable combatants and submarines. Operating under the control and umbrella of regularly deployed Aegis combatants, Arsenal Ship will supply substantial firepower early, giving unified Commanders-in-Chiefs the capability to halt or deter invasion and, if necessary, enable the build-up of coalition land-based air and ground forces to achieve favorable conflict resolution. Through concentration of massive firepower, continuous availability and application of netted targeting and weapons assignment, the Arsenal Ship will dramatically increase the scope and relevance of surface strike and fire support.

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QUESTION NUMBER 13

NEW ATTACK SUBMARINE

QUESTION: Mr. Secretary, you are quoted in this month's National Defense as having said, "Standard acquisition practices don't work. Let our people be innovative." That's exactly what I've been saying for over a year regarding our submarine shipyard design teams. Why do you want to let your people be innovative and deny the submarine designers the same opportunity?

ANSWER: Both the March 1996 Secretary of Defense Report on Nuclear Attack Submarine Procurement and Submarine Technology and the April 5, 1996 Memorandum of Agreement signed by the Navy and both shipbuilders encourage the shipbuilders to be innovative. The March 1996 report included ways the New Attack Submarine Program would continue to involve the shipbuilders. For example:

- Provide information regarding the Navy's submarine research and development programs being pursued by industry and government laboratories and research centers to both shipbuilders;

- Call upon the shipbuilders to propose improvements to the base design that would reduce cost or improve capabilities to meet mission requirements at an affordable cost; and

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- Use the Fiscal Year 1998 New Attack Submarine design as the base design for both shipbuilders. As deemed prudent, the base design would be updated to incorporate producibility improvements and new technologies approved for each subsequent ship to enhance operational capability or cost effectiveness.

As you know, Sir, I have personally asked both submarine shipbuilding contractors and the contractor who is developing the combat systems to recommend innovative research projects which they could conduct that would lead to new and better technology in our submarine force. These recommendations will be briefed to the DoD Submarine Technology Oversight Council in the near future.

I might add, Sir, that this debate has for the past few years carried the implication, as your question does, that the submarine shipbuilders are telling the Congress that the Navy has not been receptive to their innovative ideas. I have personally asked the leadership at both shipyards about this and both have told me that they have made no such representations to the Congress. If you are in receipt of information which contradicts these assertions, it would be most helpful to all concerned if we could be advised of any specific proposals so they may be fully evaluated. I remain dedicated to working with you to consider all feasible and affordable proposals.

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QUESTION NUMBER 14

NEW ATTACK SUBMARINE

QUESTION: Why should we believe any of the dollar figures in the submarine plan when last year the Navy said it would cost "about $200M and take two to four years for Electric Boat to redesign the NAS so that it could be produced at Newport News?"

ANSWER: In the May 1, 1995, report on Navy Submarine Acquisition Plan and Assessment of Shipbuilder Proposed Alternative Plan, the Navy estimated that the cost of transferring the design to Newport News Shipbuilding (NNS) in conjunction with shifting submarine construction to NNS would be $180M - $235M. Last fall, the Navy estimated design transfer cost in conjunction with the four ship plan to be approximately $160M from Fiscal Year 1996 to Fiscal Year 1999. Design transfer under the four ship plan is less costly because lead design yard functions will remain at Electric Boat and do not need to be duplicated at NNS. As the shipbuilders further define the scope of the design transfer process, adjustments may be made.

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QUESTION NUMBER 15

NEW ATTACK SUBMARINE

QUESTION: What recommendations from Admiral Baciocco's independent study did you implement? Not implement? Were the ones implemented at the recommended funding levels?

ANSWER: This study confirmed the need for the Navy's actions already underway to review core submarine technology investment levels and involve the shipbuilders in submarine research and development. The Navy has identified a requirement for $60 million additional RDT&E funding for core submarine technology development and transition. This amount would accommodate implementation of many of the study's specific recommendations.

Additionally, the study identified other areas, such as technology management, that warranted further review. An Integrated Product Team has been established, as part of the Department of Defense's Submarine Technology Oversight Council, to review these areas. Their results are expected later this summer. In summary, the Navy intends to implement the results of the Baciocco Panel.

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QUESTION NUMBER 16

NEW ATTACK SUBMARINE

QUESTION: What did Dr. Kaminski do, if anything, to change what you recommended to him?

ANSWER: The Submarine Technology Assessment Panel recommendations were presented as an information brief to Dr. Kaminski. The Submarine Technology Oversight Council will be used as the forum to address the concerns and recommendations of the Panel. Dr. Kaminski has also directed the Navy to consider a broader range of options than were included in the original Navy plan.

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QUESTION NUMBER 17

NEW ATTACK SUBMARINE

QUESTION: How can you say that the plan is "consistent with Section 131" when that section specifically states that the plan "shall designate the fifth submarine to be procured as the lead ship in the next generation submarine class and your plan clearly identifies the first submarine as the lead ship?

ANSWER: The design currently being produced by Electric Boat is the base design that will be modified as producibility and performance improvements are proposed, approved and funded for incorporation into subsequent designs and ships.

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QUESTION NUMBER 18

ACQUISITION

QUESTION: Why did the Navy choose to add a previously unbudgeted LPD 17 to its fiscal year 1999 program and forego funding a submarine?

ANSWER: The Navy's proposed fiscal year 1997 SCN plan submitted to the Office of the Secretary of Defense in May 1995 funded one New Attack Submarine in each of the fiscal years 1998 and 2000, and anticipated a building rate of two submarines per year beginning in fiscal year 2002. The Navy's fiscal year 1997 submittal also funded the lead LPD 17 in fiscal year 1998, with a normal gap year in production in 1999. Subsequent to the Navy budget submission, Congress authorized and appropriated the funding for the lead LPD 17 in fiscal year 1996, and advance procurement of a New Attack Submarine, to be built at Newport News Shipbuilding, in fiscal year 1999.

The Office of the Secretary of Defense subsequently adjusted the SCN plan, prior to submitting the fiscal year 1997 President's budget request, to provide for stable, continuous production of the LPD 17 program, after an initial gap year in 1997. As a result of this action, and in compliance with the fiscal year 1996 Defense Authorization Act, funding for the fiscal year 1999 New Attack Submarine exceeded the President's budget, and was submitted above core.

The actions directed by the Congress for fiscal year 1996 are being addressed by the Navy in the development of future year budget submissions.

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QUESTION NUMBER 19

ACQUISITION

QUESTION: Why did the Navy refuse to fund a fourth submarine in fiscal year 2001, even though the Congress brought forward and funded the LHD 7 previously budgeted in that year?

ANSWER: The proposed fiscal year 1997 Navy SCN plan submitted to the Office of the Secretary of Defense in May 1995 funded one New Attack Submarine in each of the fiscal years 1998 and 2000, and anticipated a building rate of two submarines per year beginning in fiscal year 2002. The Navy's fiscal year 1997 submittal also funded the last LHD 1 in fiscal year 2001. Subsequent to the Navy budget submission, Congress authorized and appropriated the funding for the LHD 7 in fiscal year 1996, and advance procurement of a New Attack Submarine to be built at Newport News Shipbuilding in fiscal year 1999. Additionally, the Secretary of Defense was requested to provide a plan for building New Attack Submarines - one in each of the fiscal years 1998 through 2001, with the 1998 and 2000 ships to Electric Boat Corporation, and the 1999 and 2001 ships to Newport News Shipbuilding.

The Office of the Secretary of Defense subsequently adjusted the SCN plan, prior to submitting the fiscal year 1997 President's Budget request, rescinding the fiscal year 2001 funding for the LHD 7, without providing this funding back to the Navy. As a result of this action, and in compliance with the fiscal year 1996 Defense Authorization Act, funding for the fiscal year 2001 New Attack Submarine exceeded the President's Budget, and was submitted above core.

The actions directed by the Congress for fiscal year 1996 are being addressed by the Navy in the development of future year budget submissions.

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QUESTION NUMBER 21

NEW ATTACK SUBMARINE

QUESTION: What's the "realistic" amount of additional core RDT&E funding required for transitioning technologies as called for by the Baciocco Panel?

ANSWER: Appendix C of the Secretary of Defense Report on Nuclear Attack Submarine Procurement and Submarine Technology identifies the funding required to transition advanced new technologies that are in various phases of research and development, as well as those that are commercially available off-the-shelf, for incorporation into the New Attack Submarine design. The funding estimates include $60 million per year ($420 million over seven years) to increase the core capability to mature and transition technologies from the research and development phase.

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NEW ATTACK SUBMARINE

QUESTION: Why does the Navy not support just going ahead with its NAS competition in FY 00 - after each yard has been allocated one submarine?

ANSWER: The Secretary of the Navy certified on February 14, 1996, to the competition requirements in the National Defense Authorization Act for Fiscal Year 1996. This certification included the option to compete after fiscal year 1999 if the four submarine plan in the Act was not adopted. By fiscal year 2000, Electric Boat will be well underway with constructing the fiscal year 1998 ship whereas Newport News Shipbuilding will have just begun cutting steel for the fiscal year 1999 ship. To establish a fair competition and sustain a competitive production base, competition should occur after both shipbuilders have sufficient New Attack Submarine experience and actual costs to develop bid packages that can be evaluated on an equal basis. An allocation of early New Attack Submarines is a more prudent and equitable approach to establish and sustain a competitive production base.

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QUESTION NUMBER 23

NEW ATTACK SUBMARINE

QUESTION: Does the Department's plan envision a "winner-take-all" competition or a "leader-follower" concept? How can you do the latter if no more than two submarines are ever funded in one year?

ANSWER: The Navy's plan in the March 1996 Secretary of Defense Report on Nuclear Attack Submarine Procurement and Submarine Technology would build the first four ships using a "leader-follower" concept. In order to preserve both shipbuilders, a competition model similar to the Fiscal Year 1996 DDG 51 class destroyer solicitation would likely be used once competition is introduced.

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QUESTION FOR THE RECORD
QUESTION NUMBER 24

NEW ATTACK SUBMARINE

QUESTION: The Department's plan states that it would be difficult to fund the Congressional plan and proposes alternatives which have "a lower near-term funding impact than the Congressional plan." However, the Department's plan also states that "The Department would face major near term affordability issues in pursuing the plan directed by Congress or the alternatives presented in this report." What is the story? Does the Department intend to pursue any of the alternatives?

ANSWER: The Department will fund the construction of the second New Attack Submarine at Newport News Shipbuilding in Fiscal Year 1999. The Navy has committed to continuous evolution of the New Attack Submarine design and is evaluating core submarine technology investment levels. As allowed for in the National Defense Authorization Act for Fiscal Year 1996, the Fiscal Year 2001 submarine, at Newport News, may be funded above core until the acquisition strategy for the New Attack Submarine is resolved.

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QUESTION FOR THE RECORD
QUESTION NUMBER 25

LARGE, MEDIUM-SPEED, ROLL-ON/ROLL-OFF SHIPS

QUESTION: Section 1013 of the FY 96 DoD Authorization Act requires the Secretary of the Navy to report his intentions to Congress by March 31st regarding the negotiation of contract options for construction of the final two Large, Medium-Speed, Roll-on/roll-off (LMSRs) called for in the Mobility Requirements Study. Can you disclose these intentions?

ANSWER: We plan to conduct a limited competition for the remaining two new construction LMSRs between the existing new construction contractors; National Steel and Shipbuilding Company (NASSCO) in San Diego, CA and Avondale Industries, Inc. (AII) in New Orleans, LA. The limited competition to add additional options to the contract(s) will be conducted by FY 1997. These ship options will include the ability to use advanced procurement funds to support required deliveries of these ships in FY 2001, and will allow these options to be exercised as early as FY 1997.

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QUESTION FOR THE RECORD
QUESTION NUMBER 26

NEW ATTACK SUBMARINE

QUESTION: What are the most promising advanced technologies that are candidates to be incorporated into the baseline design? What is the projected investment required to mature these technologies prior to selecting the class baseline in 2003?

ANSWER: The most promising technologies are identified in Appendix C to the Secretary of Defense's Report on Nuclear Attack Submarine Procurement and Submarine Technology. Appendix C also provides an estimate of the funding required to mature technologies in each technical area for installation. This total takes into account technology development that is currently funded by the Navy and the Defense Advanced Research Projects Agency and assumes that this funding will continue at planned levels. Note that technologies targeted for Fiscal Year 2002 and beyond may require additional research and development funding after Fiscal Year 2003. The funding estimates include $60 million per year ($420 million over seven years) to increase the core capability to mature and transition technologies from the research and development phase.

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QUESTION NUMBER 27

NEW ATTACK SUBMARINE

QUESTION: What specific steps has the Navy taken to ensure both shipbuilders will be able to propose improvements, including design improvements, for each successive submarine as new and better technology is demonstrated?

ANSWER: The Navy signed a Memorandum of Agreement with both shipbuilders on April 5, 1996, that calls upon the shipbuilders to propose improvements to the design of the New Attack Submarine that would reduce cost or improve capabilities to meet mission requirements at an affordable cost. The Navy is also committed to providing information regarding the Navy's submarine research and development programs being pursued by industry and government laboratories and research centers to both shipbuilders. Finally, to ensure that the shipbuilders are also involved in the process to advance submarine technology from initial concept to production, they will participate in the Department of Defense's Submarine Technology Oversight Council as appropriate.

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QUESTION FOR THE RECORD 28

NEW ATTACK SUBMARINE

QUESTION: What actions have been taken to date and what specifically will be taken in the near future to implement a rapid prototype acquisition strategy in concert with ARPA and the shipbuilders (Electric Boat Corporation and Newport News Shipbuilding)?

ANSWER: The Defense Advanced Research Projects Agency's (DARPA) mode of operation is essentially a rapid prototyping approach to high risk technology development. DARPA conducts "proof of concept" demonstrations of promising, high payoff technologies for fleet performance enhancement, cost savings, etc.. DARPA does have ongoing work with both Newport News and Electric Boat: Simulation Based Design and Maritime Technology program work at Newport News, and Advanced Technologies for Submarine Operations in the Littoral (ATSOL) program, which includes Advanced Submarine Sail Concept development, at Electric Boat. All of these programs are now impacting submarine designs, even before maturing to the point where large scale prototype demonstrations are feasible. DARPA will present these efforts and plans for future efforts to the Submarine Technology Oversight Council this summer.

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QUESTION FOR THE RECORD
QUESTION NUMBER 29

NEW ATTACK SUBMARINE

QUESTION: Secretary Douglass, you have indicated again today that the Navy supports building the second New Attack submarine at Newport News beginning in FY 1999. Yet when this year's budget came up, the funding required in FY 1997 for that submarine was not included in the budget request because of "resource problems." Assuming that Congress provides the necessary funding for those long lead items this year, can we count on the Navy and the Office of the Secretary of Defense adding funding to its future budget requests for that FY 1999 submarine?

ANSWER: Yes. The Navy is identifying funding in the Future Years Defense Program (FYDP) to construct the second New Attack Submarine at Newport News Shipbuilding in Fiscal Year 1999.

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QUESTION FOR THE RECORD
QUESTION NUMBER 30

NEW ATTACK SUBMARINE

QUESTION: Secretary Douglass, last year the Congress authorized and appropriated $100M for "long-lead and advance construction and procurement" for the FY 1999 submarine to be built by Newport News Shipbuilding. Additionally, Congress specifically authorized the Secretary to enter into contracts during this fiscal year with the shipyard for the procurement and advance construction of those long-lead and other components of that submarine. Secretary Douglass, has the Navy entered into any contracts with Newport News Shipbuilding as anticipated by these provisions, and if not, when do you plan to do so?

ANSWER: A contract modification was awarded to Newport News Shipbuilding on April 9, 1996, to support the design transfer and construction planning efforts. Design transfer planning efforts prior to the April award were conducted under an existing level of effort cost reimbursable contract. In addition, contracts to procure a portion of the long lead nuclear components for the second ship have been awarded.

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QUESTION FOR THE RECORD
QUESTION NUMBER 31

NEW ATTACK SUBMARINE

QUESTION: Secretary Douglass, last year Congress authorized and appropriated additional funds for the development and demonstration of advanced submarine technologies. The Congress specifically directed the Director of ARPA to implement a "rapid prototype acquisition strategy for both land-based and at-sea based subsystem and system demonstrations of those advanced technologies. This strategy was to be developed in concert with the Navy and the two shipyards. Secretary Douglass, I recognize that the Navy is somewhat hamstrung by this provision placing responsibility with ARPA, but can you tell us what has been done up until this point to implement this Congressional direction? Have any contracts been signed with the shipyards to implement this program, and if not, why not? Who is the senior program official in ARPA responsible for implementing this program? Why shouldn't the Navy be put in charge of this program?

ANSWER: The Director, Defense Advanced Research Projects Agency (DARPA) is responsible for ongoing work at both Newport News and Electric Boat: Simulation Based Design and Maritime Technology program work at Newport News, and Advanced Technologies for Submarine Operations in the Littoral (ATSOL) program, which includes Advanced Submarine Sail Concept development, at Electric Boat. These programs are now impacting submarine designs, even before maturing to the point where large scale prototype demonstrations are feasible.

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QUESTION NUMBER 31 (cont)

DARPA's mode of operation is essentially a rapid prototyping approach to high risk technology development. The Navy is working closely with the Director of DARPA to identify specific actions to meet the requirements established in the National Defense Authorization Act for Fiscal Year 1996, and ensure incorporation of mature technologies into future submarine design and construction efforts.

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